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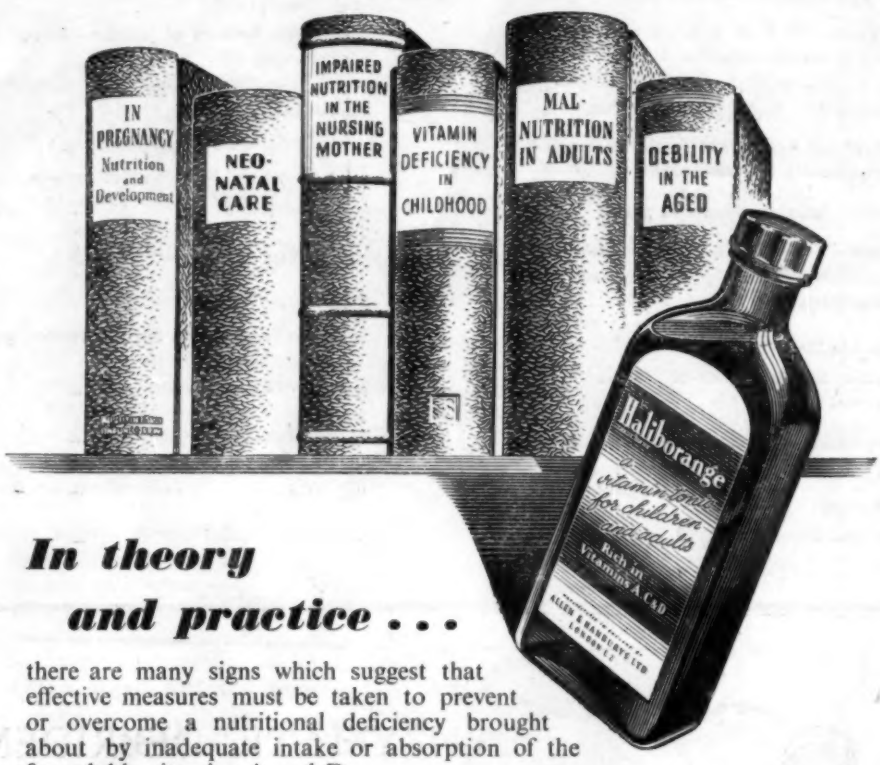
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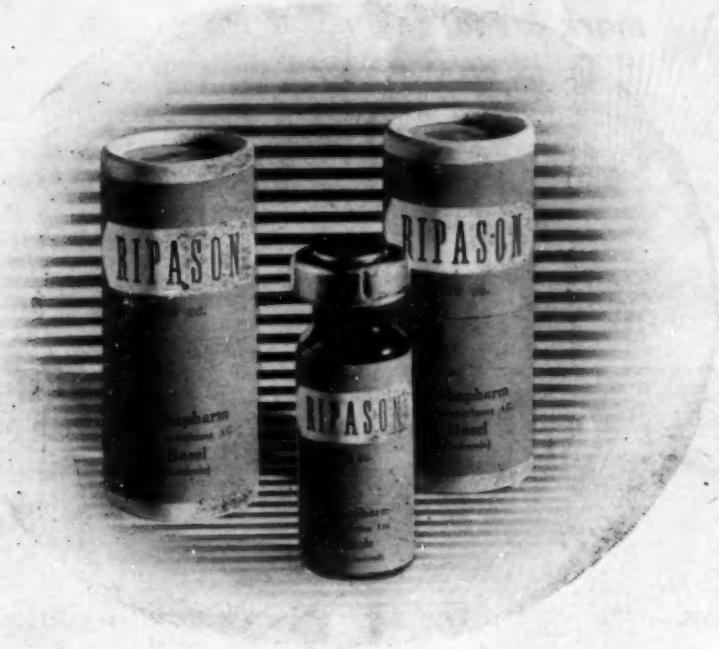

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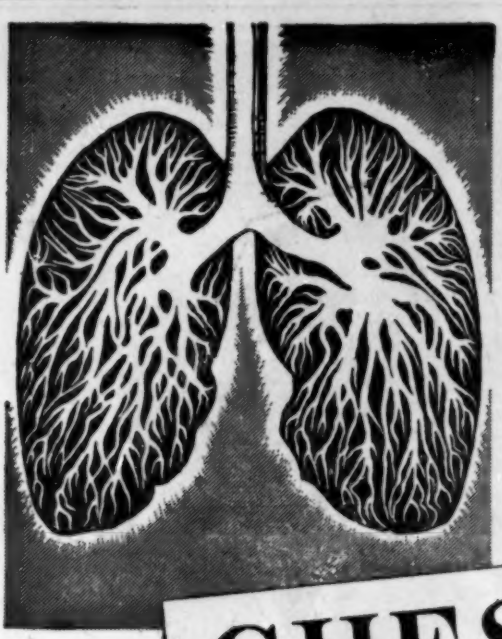

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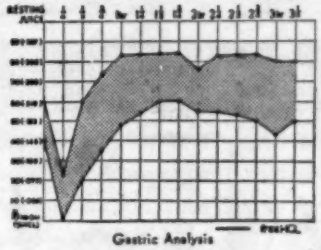
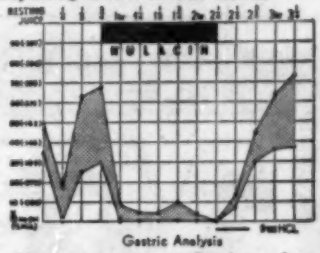


Superimposed gruel test-meal curves of six patients with duodenal ulcer.



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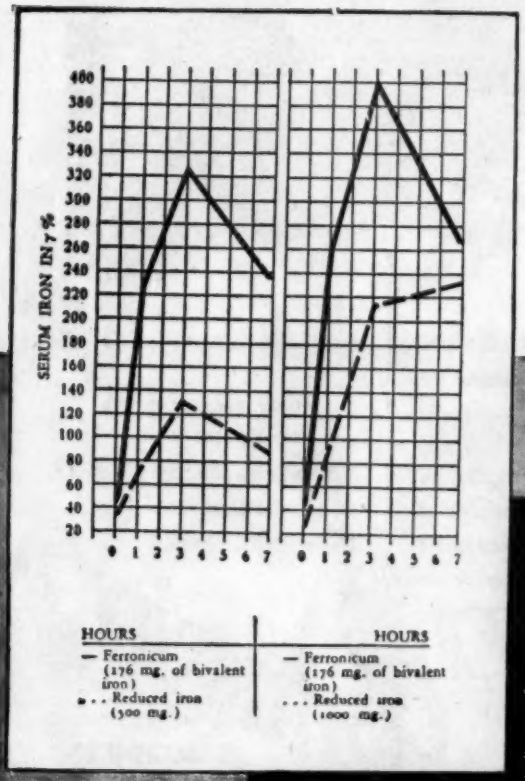

The graph shows the better absorption of Ferronicum as compared to reduced iron. Small oral doses of Ferronicum increase the serum iron level far more than large doses of reduced iron (average from 5 patients). (Jasinsky, Schw. Med. Wschr., 80, 59, 1950)

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ORIGINAL ARTICLES

CORRELATION OF B.M.R., P.B.I. AND RADIOIODINE UPTAKE IN THE ASSESSMENT OF THYROID FUNCTION

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In the diagnosis of thyroid dysfunction, the measurement of basal metabolic rate has been used since long as a routine procedure. The dependability of this test is limited by certain standard conditions required by the physician, the apparatus and, the more important, the patient (Roth and Roth, 1944). Many types of patients, *e.g.*, the asthmatic, the cardiac, the psychotic and the neurotic, etc., are unsuited for this test.

A second and more accurate indicator of the thyroid function is the amount of organically bound iodine of plasma or serum (P.B.I.) (Swenson and Curtis, 1948). Winkler (1947) has tabulated the serum iodine values of euthyroid and hyperthyroid individuals which compare favourably with the results of the measurement of B.M.R. However, as iodine in this form occurs in very minute quantities, the technical difficulties of accurate determination preclude its use in a routine fashion (Barkar, 1950).

The third and the most important of all methods is the study of iodine uptake by the thyroid with the help of a tracer dose of radioiodine. Hertz *et al* (1938) and Hamilton (1938) were the first to use labelled iodine in measuring the iodine uptake by human thyroid. It has been established that the accumulation of radioiodine in the gland is a direct measure of the thyroid activity—the more or less active the thyroid is, the more or less is the concentration of iodine in the gland. Several methods of estimating thyroid function in human subjects with the help of radioiodine have recently been reviewed by Keating *et al* (1950) and Werner *et al* (1950).

A certain degree of overlap is noticed in the maximum uptake of euthyroid and hyperthyroid cases. In order to overcome uncertainty caused by this overlap, other parameters of the uptake curve, *viz.*, the rate of uptake, the disappearance rate of the iodine from blood, the thyroidal clearance rate, etc., have been considered (Myant, 1952 ; Hursh and Karr, 1951).

It has been found that the diagnosis of thyroid function based on either clinical symptoms, B.M.R., P.B.I., maximum uptake, rate of uptake or disappearance rate of iodine from blood alone is not absolutely reliable. In order to arrive at a sure diagnosis one must carry out several of these tests simultaneously.

This paper contains an account of the measurement of all the parameters in 21 thyroid cases. Limits of normal thyroid function for different tests have been established on the basis of the previous measurements in this laboratory as well as in other places. With the help of these limits of individual tests, thyroid function has been assessed. The final classification of either euthyroid or

hyperthyroid was arrived at from the verdict of the majority of these tests.

Methods

A complete case history was recorded for all patients studied in this series. Any previous treatment with antithyroid drugs such as Lugol's iodine, thiouracil, etc. was taken into consideration. The physical examination consisted essentially of noting the size, shape and consistency of the thyroid gland, the presence of exophthalmus, the pulse rate and rhythm, the presence of tremors of the hands and tongue and the patient's weight.

B.M.R. was measured with the help of Benedict Roth Metabolism apparatus 12 to 14 hours after the meal with the patient lying motionless but awake in a comfortable environment. A basal metabolic rate within ± 20 per cent was considered to be normal (Jaffe and Ottoman, 1950).

Plasma-protein-bound iodine was determined according to the method of Barker *et al* (1951), and blood for this purpose was drawn immediately after completion of B.M.R. The P.B.I. level was considered normal between 4·0 and 9·0 micrograms per 100 c.c. of plasma as deduced from a previous study in this laboratory (Chakraborty, 1952).

The percentage of the administered radioactive iodine concentrated by the thyroid was measured according to the usual methods (Werner, Quimby and Schmidt, 1948; Oshry and Schmidt, 1948; Soley and Miller, 1948). The radioiodine received from A.E.R.E., Harwell, was divided into tracer doses of 100 microcuries each of carrier-free I^{131}. An equal amount of I^{131} made up to a volume equal to the estimated thyroid volume was kept in a 50 c.c. flat bottomed flask to simulate the geometry of thyroid, which served as the standard. The patient was given the tracer dose orally in an empty stomach. The uptake in the thyroid gland was measured at regular intervals with the help of a gamma counter, the patient lying supine on the bed. The Geiger-Müller tube was fixed in a position 15 cm. above the thyroid isthmus. The flat bottomed flask containing the standard was placed at the same distance of 15 cm. above the Geiger-Müller tube, so as to simulate the actual measuring conditions on the thyroid and count per second was recorded. The percentage uptake of the radioiodine by the thyroid was calculated. From the graphical plot of percentage uptake against time, the maximum uptake, the time to reach the maximum concentration, the rate of uptake per hour and the disappearance rate of iodine from blood were determined.

A maximum uptake ranging between 15 and 40 per cent was considered normal and a maximum uptake above 40 per cent, was considered as indicative of hyperthyroidism (Werner *et al*, 1950; Myant, 1952; Werner, Quimby and Schmidt, 1948).

The upper limit of time to reach the maximum iodine concentration in the thyroid gland was taken to be 15 hours in the case of hyperthyroid patients. In the case of euthyroid patients, the maximum was attained more slowly.

The collection of iodine by the thyroid may be represented approximately by an exponential relation (Keating *et al*, 1947)

$$q = Q(1 - e^{-\alpha t}) \quad \ldots\ldots\ldots \quad (1)$$

where q is the concentration of radioiodine at time t, Q the maximum concentration reached at $t = \infty$. One can find out the value of the rate constant α from the log plot. α also signifies the disappearance rate of iodine from blood (Myant, 1952). A value of α less than 20 per cent per hour was regarded normal (Werner *et al*, 1950; Keating *et al*, 1950).

The rate of uptake of iodine at any instant is given:

$$\frac{dq}{dt} = Q \alpha e^{-\alpha t} \quad \ldots\ldots\ldots \quad (2)$$

It is evident from equation (2), as is also confirmed by actual measurements that the rate of uptake is not constant; it is high initially and then progressively decreases with time. In order to avoid uncertainties in the absorption of iodine from stomach immediately after its administration, in this work the average rate of iodine accumulation during the first three hours was always measured. The results of previous measurements in this laboratory (Chakraborty *et al* 1954) show that the first three-hour average rate of uptake for euthyroid cases is always less than 6 per cent per hour and for hyperthyroids the rate is higher.

The different factors with their limits mentioned above were considered in each case. Based on the majority of these tests final diagnosis was arrived at. This diagnosis was regarded as more reliable than one based on either the clinical symptoms or any single examination.

Results

The results of all the measurements in the twenty-one cases studied in this series have been included in Table 1. It may be seen from the table, that the B.M.R. in the case of euthyroid patients varied from −15 to +23·6 per cent and in hyperthyroid patients it varied from +16 to +84 per cent. The P.B.I. in euthyroid cases was found to vary from 4·2 to 9·8 μg per 100 c.c. of plasma and in hyperthyroid cases the variation was from 8·2 to 26·7 μg. per 100 c.c. of plasma.

TABLE 1—DATA FOR B.M.R., P.B.I., MAXIMUM UPTAKE, RATE OF UPTAKE, THE DISAPPEARANCE RATE OF IODINE FROM BLOOD, AND THE FINAL DIAGNOSIS FOR DIFFERENT CASES.

Case No. and Initial	B.M.R.	P.B.I. in μg. per 100 c.c. of plasma	Maximum uptake in % of applied dose	Time to reach the maximum in hr.	First three hour's average rate of uptake in per cent per hr.	Disappearance rate of iodine from blood in per cent per hr.	Final diagnosis
1. C.B.M. ..	—	5·60	28	20	3·0	12	Euthyroid
2. M.S. ..	− 2·1	—	35	24	4·3	12	Euthyroid
3. A.D. ..	+12·5	6·3	55	20	13·6	25	Euthyroid
4. B.N.D. ..	+13·0	6·97	15	24	2·0	15	Euthyroid
5. S.C.P. ..	+23·6	8·76	21	24	1·9	9	Euthyroid
6. K.D. ..	− 4·0	7·35	24	24	3·3	19	Euthyroid
7. L.B. ..	+11·0	8·96	38	24	3·3	16	Euthyroid
8. R.R.B. ..	− 7·0	6·90	33	24	3·0	13	Euthyroid
9. N.B.M. ..	− 6·6	5·90	34	20	2·9	8	Euthyroid
10. P.B.D. ..	+20·0	7·20	27	20	5·3	18	Euthyroid
11. M.K. ..	− 3·0	6·13	40	24	3·3	9	Euthyroid
12. S.S. ..	+17·0	4·20	32	24	2·7	18	Euthyroid
13. U.B. ..	+63·0	13·40	88	15	13·3	16	Hyperthyroid
14. D.M.A. ..	+29·0	12·67	48	9	6·0	19	Hyperthyroid
15. U.R.D. ..	+84·0	20·67	48	9	10·5	22	Hyperthyroid
16. D.R.M. ..	+16·4	13·25	60	13	9·0	29	Hyperthyroid
17. G.S. ..	—	10·45	70	7	20·0	28	Hyperthyroid
18. P.R.M. ..	+54·5	8·25	39	10	6·6	31	Hyperthyroid
19. G.B. ..	+23·0	15·12	66	4	23·0	34	Hyperthyroid
20. R.D. ..	−15	4·50	41	16	6·0	—	Euthyroid
21. N.I.M. ..	− 6·4	9·8	55	24	5·3	16·8	Euthyroid

The maximum iodine uptake was found to vary between 15 and 55 per cent for euthyroid cases and 39 and 88 per cent for hyperthyroid cases. In euthyroid cases, the maximum uptake was reached between 16 and 24 hours, but in hyperthyroid cases, it was reached as early as 4 to 15 hours after the administration.

The first three hours' average rate of uptake (dq/dt) in euthyroid cases was found to vary between 1·9 and 6 per cent per hour and in hyperthyroid cases it varied between 6 and 23 per cent per hour. The disappearance rate (a) of iodine from blood in per cent per hour in euthyroid cases varied between 8 and 19, whereas in hyperthyroid cases the variation was between 16 and 34 per cent per hour.

In Fig. 1, the percentage uptake of all cases, both euthyroid and hyperthyroid, has been plotted on a graph against time. The figure shows a considerable variation of this uptake within each group of patients. Curves have been drawn through maximum and minimum points attained within the two groups and it may be seen that the amount of overlapping between the two groups is very small.

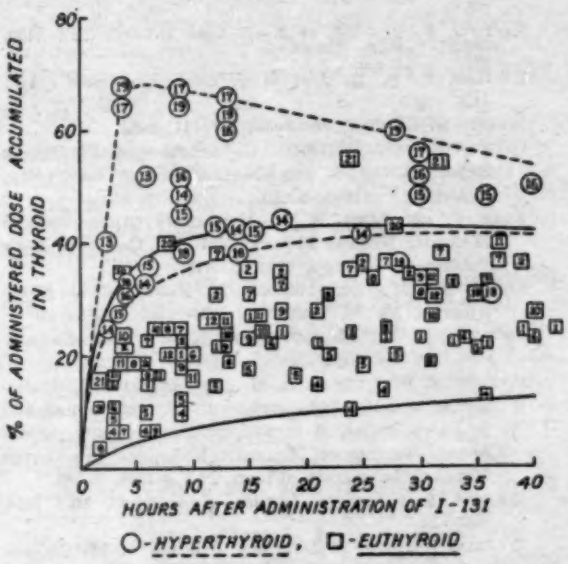

FIG. 1—UPTAKE OF I^{131} BY THE THYROID

DISCUSSION

In most of the cases, the thyroid function as diagnosed by different methods agreed well, but in some cases disagreement among the results of the different measurements was also noticed. This gives rise to doubt regarding the dependability of

the results of any one measurement alone in diagnosis of the thyroid function. So the final diagnosis in Table 1 was arrived at after considering the results of all the measurements and depending on the verdict of the majority. This will be more clearly understood from the examples of cases below :

S.C.P. (Case 5) had a basal metabolic rate of +23·6% and if this case were to be diagnosed only from the results of B.M.R. measurement, this would have been diagnosed as hyperthyroid. The results of all the other measurements were however, within euthyroid limits and hence this case was diagnosed as euthyroid.

D. M. A. (Case 14) showed a slow disappearance rate of iodine from blood although her B.M.R., P.B.I., maximum uptake and time to reach the maximum were within hyperthyroid limits. She had therefore been classified in the hyperthyroid group.

D. R. M. (Case 16) had a basal metabolic rate as low as +16·4% which was within the euthyroid range. The results of other measurements clearly indicated hyperthyroidism and hence this case was diagnosed as hyperthyroid.

P. R. M. (Case 18) had a normal P.B.I. which would have led this case to be diagnosed as euthyroid. But the results of all the other measurements were distinctly within the limits of hyperthyroidism. So this case was finally diagnosed as hyperthyroid.

N. I. M. (Case 21) : From the nature of the maximum iodine uptake and the results of the protein-bound iodine measurement this case appeared to be hyperthyroid. But the results of the other studies definitely led to a diagnosis of euthyroid. Hence this case was diagnosed as euthyroid.

A. D. (Case 3) was exceptional. She had a history of treatment with radioactive iodine for hyperthyroidism about one year back. The results of her B.M.R. and P.B.I. measurements were within euthyroid limits. Her clinical symptoms also substantiated this finding. But she had an iodine uptake of 55% and the other parameters of her uptake curve were also within hyperthyroid limits. In spite of this residual high uptake the final diagnosis was made to be euthyroid as such residual high uptake after therapy has also been reported by other workers (Werner *et al*, 1848).

Summary

1. Clinical symptoms, Basal Metabolic Rate, Protein-Bound Iodine and Tracer Uptake of Iodine and its parameters have been studied in 21 thyroid cases.

2. If the limits of normal functioning thyroid for different tests are assumed from the results of previous workers, it is found that the diagnosis based on individual tests sometimes conflict with one another.

3. In this work, the final diagnosis of thyroidal state was arrived at from the results of the majority of all the tests and the importance of carrying out all tests for a correct understanding of the thyroid function has been established.

Acknowledgment

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References

Barker, S. B.—In Soskin's Progress in Clinical Endocrinology, Grune and Stratton, New York, 2nd printing, 1950, p. 61.

Barker, S. B. Humphery, M. H., and Soley, M. S.—*J. Clin. Invest.*, **30** : 55, 1951.

Chakraborty, K. P.—*Science and Culture*, **18** : 151, 1952.

Chakraborty, K. P., *et al*—*J. Endocrinol*, **10** : 308, 1954.

Hamilton, J. G.—*Am. J. Physiol.*, **124** : 667, 1938.

Hertz, S., Roberts, A., and Evans, R. D.—*Proc. Soc. Exper. Biol. & Med.*, **38** : 510, 1938.

Hursh, J. B., and Karr, J. W.—In Hahn's Manual of Artificial Radioisotope Therapy, New York, Academic Press, 1951, p. 66.

Jaffe, H. L. and Ottoman, R. E.—*J.A.M.A.*, **143** : 515, 1950.

Keating, F. R. (Jr.), *et al*—*J. Clin. Invest.*, **26** : 1138, 1947.

Keating, F. R. (Jr.), *et al*—*J. Clin. Endocrinol.*, **10** : 1425, 1950.

Myant, N. B.—*Brit. M. Bull.*, **8** : 141, 1952.

Oshry, E., and Schmidt, C.—Brookhaven Conference Report, BNL-C-5, Brookhaven National Laboratory, Upton, N.Y., 1948, p. 50.

Roth, P. and Roth, H. P.—Metabolism; Apparatus and Methods, Medical Physics, Vol. I. The Year Book Publishers, Chicago, 1944, p. 718.

Soley, M. H., and Miller, E. R.—*M. Clin. North America*, **32** : 3, 1948.

Swenson, R. E., and Curtis, G. M.— *J. Clin. Endocrinol.*, **8** : 934, 1948.

Werner, S. C., Quimby, E. H., and Schmidt, C.—Radioactive iodine in the treatment of toxic goitre and as an indication of thyroid function in man. Brookhaven Conference Report, BNL-C-5, Brookhaven National Laboratory, Upton, N.Y., 1948, p. 69.

Werner, S. C., *et al*—*J. Clin. Endocrinol.*, **10** : 1054, 1950.

Winkler, A. W.—In Duncan's Diseases of Metabolism, 2nd Ed., W. B. Saunders Co., Philadelphia, 1947, p. 896.

MITES AS AN AETIOLOGICAL FACTOR IN TROPICAL EOSINOPHILIA

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INTRODUCTION

The aetiology of tropical eosinophilia has not so far been accurately determined. Various theories have been put forward by different workers at different times, to explain this common condition. More recently, some workers in Ceylon such as Carter, Wedd and D'Abrera (1944), Soysa and Jayawerdena (1945) and Carter and D'Abrera (1946) advanced the 'mite theory' holding that mites were either directly or indirectly responsible for the production of the disease. They found mites in various stages of development in the sputa of their patients and came to believe that mites could breed in the respiratory passages of man. Some induced a condition similar to tropical eosinophilia in monkeys by infecting them with the eggs of mites through the nose. These workers explain that mites are very abundantly found in floor sweepings in dwellings, in godowns, rationshops, on flowers, etc., and that a person living in a mite-laden atmosphere may get infected by inhaling these mites and that these mites, either by themselves or because of some as yet unknown germs that they may carry on them, cause the condition popularly known as tropical eosinophilia. A good majority of their patients were engaged in occupations entailing constant and repeated exposure to mites, living as they did in a mite-laden atmosphere.

This theory, having been supported by different workers and at different times, prompted the author to pursue the same lines of investigation and the following report confines itself mainly to the "mite factor" in the aetiology of tropical eosinophilia.

The necessary investigations were carried out with the following points borne in mind: (*a*) To prove that mites are either directly or indirectly responsible for the causation of tropical eosinophilia, the presence of mites must be demonstrated in the sputum, avoiding all contamination from extraneous sources and if so demonstrated; (*b*) It must be shown with reasonable certainty that the mites so demonstrated were really expelled in the sputum from the lower respiratory passages; (*c*) If mites were so seen in the sputum, it must be shown wherefrom these cases got the infection and whether they actually lived in a mite-laden atmosphere so as to predispose them to inhalation of mites; (*d*) Conversely, persons working for long periods of time in a mite-laden atmosphere should reasonably be expected to suffer from the disease. With these in view, the following investigations were carried out in a total of thirty-nine cases of tropical eosinophilia proved by clinical, radiological, haematological and other laboratory findings.

INVESTIGATIONS

1. The sputum from these cases was examined repeatedly for the presence of mites.

2. Mouth washings were examined in the mite-positive cases to see if the mites were derived from the throat and mouth only or actually from the lower respiratory tracts.

3. The nature of occupation and residential surroundings of the mite-positive cases was investigated to determine whether they lived in a mite-laden atmosphere and thus ascertain the source of infection.

4. Godown workers working in godowns heavily infected with mites were examined to see if they suffered from tropical eosinophilia. The results of these investigations are given below.

The sputum from cases of tropical eosinophilia was examined on a number of occasions, both before and after treatment, for the presence of mites. The method adopted for this examination was as follows, and is only a slight modification of the method described by Carter, Wedd and D'Abrera (1944): A twenty-four hours' specimen of sputum was collected into a wide-mouthed, glass-stoppered, sterile culture bottle containing 10 c.c. of 5 per cent potassium hydroxide solution. To the sputum thus collected 10 c.c. more of the same potassium hydroxide was added to dissolve away excess mucus and cellular debris. The bottle was then set aside till the sputum became somewhat clear. Then, enough formalin to give a 10 per cent concentration roughly, was added to the bottle. Also, 15 to 20 drops of Löffler's alkaline methylene blue was added to stain the mites, if any. The bottle was then set apart, tightly closed for twenty-four hours, after which the sputum was centrifuged for about 10 minutes at about 5,000 revolution per minute. The deposit was then mounted on a slide, coverslip placed and sealed with vaseline. This was later examined under the low-power of a microscope. The whole field was thoroughly and systematically examined. Very rigid precautions were observed in collecting the sputum and in the subsequent procedures adopted and hence contamination from whatever source could safely be ruled out.

Results

Out of thirty-nine cases thus examined, only four showed mites in the sputum. In all these cases the mites were present only before treatment was started, no mites being seen once treatment was commenced. The sputum-positive cases were examined for mites on twelve different occasions and on each occasion mites numbering from two to four were seen. All the mites observed were adults; no eggs, larvae or other stages in the life cycle of the mite were seen except in one case where it appeared to be in the hypopal stage. The mites were all entire and well stained by Löffler's methylene blue. The size of the mites varied from 0·1 mm. to 0·4 mm. in length. Each mite-positive case showed more than one type of mite and of these only the *Tyroglyphus longior* could be identified.

In one case which showed four mites in the sputum before therapy was commenced, mouth washings were examined with a view to ascertain with reasonable certainty, whether the mites were derived from the lower respiratory tracts or the mouth and throat only. The patient was asked to rinse and gargle his mouth and throat with sterile normal saline and spit into a culture bottle, prepared as mentioned above and this material was similarly examined for mites. This revealed one mite, identical with the type of mite present in his sputum, showing thereby that those that were present in his sputum were also probably derived from the mouth and throat only.

The occupation, nature of work and the residential surroundings of the mite-positive cases were enquired into, to determine the source of the infection, if possible. Among these, one was a cleaner in a hotel, one a farmer, the third a cook and the last a fisherman. It is thus obvious that none of them was engaged in an occupation that entailed constant and repeated contact with and exposure to a mite-laden atmosphere such as is seen in godowns, ration-shops, etc., and yet they all suffered from tropical eosinophilia. Next, the places of residence of these mite-positive cases were examined for the presence of mites in floor sweepings, dust from the corners and crevices, etc., where mites are supposed to thrive, to see if they lived in a mite-laden atmosphere. No mites were found.

A survey of the local godowns was made in an endeavour to look for the presence of mites in the grains stored therein, and if found, to look for the disease in persons who worked in these godowns for long periods of time and were thus exposed to a mite-laden atmosphere constantly. Out of eight godowns thus examined, six harboured mites and two very heavily. Thereafter, ten persons working in these mite-laden godowns for periods of time ranging from six months to five years were examined both clinically and haematologically to find if they were suffering from tropical eosinophilia. None of the workers complained of any illness and they were all in apparently good health. Clinically, nothing abnormal was found and their white cell counts revealed no abnormality.

The following facts come out in this short enquiry:

(1) Mites were found in the sputum of only four cases out of thirty-nine, *i.e.*, in only 10·2 per cent of the cases.

(2) In each case, the number of mites recovered from the sputum was very few (two to four).

(3) One mite was found in the mouth washings of a mite-positive case, which goes to show that the mites seen in the sputum in the other cases were also derived probably only from the buccal cavity.

(4) In all instances, the mites were adults, except in one where it was in the hypopal stage, showing thereby that they probably do not breed in the respiratory system of man.

(5) Ten workers in godowns infected with mites for long periods of time were seen to be in a normal state of health.

Conclusion

The above facts strongly tend to show that mites are not very probably responsible for the production of tropical eosinophilia. However, a study of many more cases is necessary to establish this beyond doubt.

Appendix

At this stage, it was thought fit to carry out simultaneously certain other investigations also, with a view to probe into other avenues in an endeavour to establish the aetiology of tropical eosinophilia. Though these investigations were carried out only in a small proportion of cases, the results are placed here for whatever they are worth and not with a view to drawing conclusions from them. A study of many more cases is undoubtedly necessary to make irrefutable inferences. The following were the investigations and observations made:

(1) The erythrocyte sedimentation rate was found to be very high in the majority of cases, being as high as 75 mm. in one hour in some cases. The technique adopted was that of Westergren or Oswald's modification. The E.S.R. repeated some fifteen days to a month after completion of treat-

ment was found to have touched normal. The raised E.S.R. is indicative of an infective process and the fall to normal after completion of treatment shows that the disease is under control.

(2) The blood Wassermann and Kahn reactions were negative in all the cases. No false positive reactions were observed. This finding is contrary to that of certain workers who have detected a false positive reaction in this disease.

(3) The cold agglutination test done in six cases was found to be negative. Some investigators found a positive high titre cold agglutination test in a good percentage of their cases and they concluded that the disease was probably of virus origin.

(4) A biopsy of the liver, which was found enlarged in one case, was done with a Silverman's needle. The biopsy report, which reads "No eosinophilic infiltration of the hepatic parenchyma. The portal tracts show a few eosinophils" does not seem to throw much light on the pathology of the condition.

(5) With an idea of investigating whether the disease could be of virus origin and in an endeavour to transmit the disease from man to monkey, the following experiment was done. To begin with, the total and differential white cell counts of the monkeys were periodically done under identical conditions. Though showing a certain amount of fluctuation, the counts were within normal limits. A patient suffering from tropical eosinophilia was asked to cleanse his mouth thoroughly with sterile normal saline each time before expectorating into a sterile culture bottle. Thus twenty-four hours' specimen of sputum was collected, some sterile normal saline added to this and the whole ground with a sterile pestle and mortar. The fluid thus prepared was lightly centrifuged in sterile glass tubes, the supernatant fluid drawn off into another culture bottle, frozen and thawed. To this, penicillin 500 to 1000 units per c.c. and some dihydrostreptomycin were added to eliminate other organisms. This fluid, after some hours' standing, was inoculated intranasally, 2·5 c.c. into each nostril, after anaesthetising the animal. This experiment was done thrice on the monkey, at intervals. The monkey is still in an apparently normal state of health, as seen both clinically and haematologically.

Acknowledgment

I have to thank the Indian Council of Medical Research for the facilities given to me in conducting the research and for permitting me to publish this article.

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References

Carter, H. F. and D'Abrera, V. St. E.—*Tr. Roy. Soc. Med. & Hyg.*, **39** : 373-05, 1946.

Carter, H. F., Wedd, G. and D'Abrera, V. St. E.—*Indian M. Gaz.*, **79** : 163, 1944.

Soysa, B. and Javawardena, M. D. S.—*Brit. M. J.* **9** : 1, 1945.

CADMIUM REACTION

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The variations of serum protein fractions are characteristic of many clinical conditions, but the estimation of the serum proteins by the approved chemical methods takes time. Therefore a simple and rapid bed side test which allows a preliminary orientation concerning the changes in the protein fractions of the serum will be very useful. The Cadmium Reaction (Chaudhuri and Dutta, 1951 ; Wuhrmann and Wunderly, 1949) has the advantages of simplicity and economy of time and provides sufficient information regarding any gross variations in the serum albumin and serum globulin fractions which will be required for clinical diagnosis.

Present Investigation

The object of the present investigation is to compare the results of the cadmium reaction with the actual values of serum albumin and globulin obtained by chemical analysis of sera from normal individuals and from cases of hepatitis, cirrhosis, hypoproteinaemia of undernutrition and obstructive jaundice, where marked alterations in the total proteins and protein fractions are met with.

Materials and Methods

The present series consisted of 15 normal cases from among the blood donors, 41 cases of infective hepatitis, 30 cases of cirrhosis of the liver, 11 cases of hypoproteinaemia, and 3 cases of obstructive

jaundice. The serum albumin and globulin were determined by fractionation with sodium sulphate (Howe, 1921) and the estimation of the protein by micro kjeldahl method. On the same samples of sera the cadmium reaction was also performed.

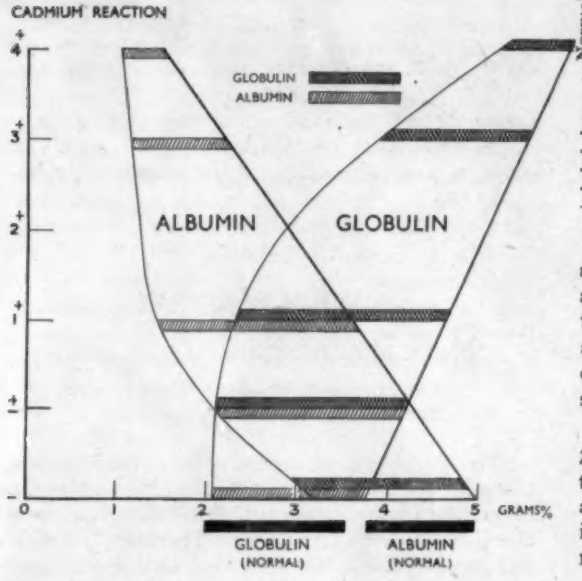

FIG. 1.

TECHNIQUE OF CADMIUM REACTION

In a small glass tube 8 mm. in diameter is placed 0·4 c.c. of freshly centrifuged serum from the fasting patient. 4 drops (0·2 c.c.) of a 0·4 per cent solution of $CdSO_4,8H_2O$ are slowly added with a precision pipette. During the addition the mixture is gently shaken to ensure mixing. The tube is examined immediately and again after 1 minute and 5 minutes. When there is no turbidity the reaction is designated as negative. If turbidity appears the fact and the degree of the turbidity are noted. For measuring the turbidity it is of advantage to view the tube with a window as background. A slight but perceptible turbidity is designated as a ± reaction. If the turbidity is intense enough after 5 minutes to cause the cross bar of the window to disappear, the reaction is designated as 1^+ to 2^+. If such turbidity develops within a minute or immediately after the addition of 2 drops of the cadmium sulphate solution, the reaction is strongly positive and is designated as 3^+. When there is flocculation and precipitation within 1 minute of the addition of the reagent, the reaction is designated as 4^+.

RESULTS AND DISCUSSION

Normal	Obstructive Jaundice	Hepatitis	Hypoproteinaemia	Cirrhosis	Total cases	Cadmium Reaction	Maximum and Minimum values for Albumins Grams %	Maximum and Minimum values for Globulins Grams %	Average value of Albumins Grams %	Average value of Globulins Grams %
4	1	9	—	—	14	—	4·98 to 3·18	3·74 to 2·01	4·17	2·91
11	2	26	3	—	42	±	4·92 to 2·05	4·28 to 2·01	3·54	2·97
—	—	6	3	15	24	1+	3·25 to 1·38	4·51 to 2·30	2·43	3·54
—	—	—	5	11	16	2+	2·95 to 1·30	5·20 to 2·72	1·91	4·36
—	—	—	—	2	2	3+	2·36 to 1·25	5·51 to 4·18	1·81	4·85
—	—	—	—	2	2	4+	1·51 to 1·01	5·54 to 5·25	1·26	5·40

4 normal cases, 1 case of obstructive jaundice and 9 cases of hepatitis gave negative reaction and these sera had the albumin and globulin fractions at about the normal level. A negative reaction, therefore, indicates that there is no appreciable alteration in the levels of serum albumin and serum globulin.

11 normal cases, 2 cases of obstructive jaundice, 26 cases of hepatitis and 3 cases of hypoproteinaemia gave a ± reaction. The values of albumin had fallen in these cases with an increase in the globulin values and the albumin/globulin ratio was in the region of 1.

6 cases of hepatitis, 3 cases of hypoproteinaemia and 15 cases of cirrhosis gave a 1^+ reaction. These cases showed an increase in the globulin over the albumin fraction. When the globulin fraction increases more than the albumin fraction the cadmium reaction indicated a 1^+ reaction or more.

5 cases of hypoproteinaemia and 11 cases of cirrhosis gave a 2^+ reaction. In these cases the globulin fraction had increased still further with the albumin/globulin ratio approaching 0·5.

2 cases of cirrhosis gave a 3^+ and a further 2 more cases of cirrhosis gave a 4^+ reaction where the albumin values had gone down to between 1 and 2 per cent and the globulin values had increased to about 4 to 5·5 per cent. The last two cases gave almost an immediate flocculation and precipitation when the cadmium reagent was added to the serum.

The cadmium reaction is due to the dehydrating action of the sulphate ions on the protein fractions of the serum. A positive reaction indicates the increase in the globulin fraction and a fall in the albumin fraction. The reaction does not appear to be influenced by changes other than variations in the protein fractions which are met with in different clinical conditions. The cadmium reaction becomes more strongly positive when the

fall in the albumin fraction and the rise in the globulin fraction is associated with a fall in the total proteins also. Such conditions are obtained in hypoproteinaemia of undernutrition. The cadmium reagent is a simple solution which can be easily prepared and which remains stable ; and the reaction can be performed at the bed side and the results can be obtained in a few minutes.

Summary

The cadmium reaction is found to become more and more strongly positive with the fall in the albumins and rise in the globulins of the serum. The relation between the degree of positivity of the cadmium reaction and the range of values for the albumin and globulin fractions of the serum is shown. The usefulness of this reaction as a rapid bedside test, which allows a preliminary orientation concerning the changes in the serum protein fractions, is emphasised.

References

Chaudhuri, R. N. and Dutta, B. N.—*Indian M. Gaz.*, **86** : 240, 1951.

Howe, Paul, E.—*J. Biol. Chem.*, **49** : 109, 1921.

Wuhrmann, F. and Wunderly, C.—*J. Lab. & Clin. Med.*, **34** : 1163, 1949.

TREATMENT OF TYPHOID FEVER WITH LAEVOROTATORY CHLORAMPHENICOL

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Typhoid fever is prevalent in the state of Madras between the months of September and February. The rise is gradual from September to November, reaches its peak in November-December and declines towards February.

85 cases of typhoid fever were admitted in the medical wards of the Government Stanley Hospital, Madras, in the period October 1953 to January 1954, under Dr. G. Victor, Physician, Stanley Hospital and were treated on the following lines :

Diagnosis was based on positive cultures for *B. typhosus* and *B. paratyphosus A* and *B* from blood, urine or stools. In a few cases where cultures were negative Widal reaction of 1 in 200 positive or more was taken as diagnostic.

The age incidence varied from 12 years to 60 years. Of the cases reported five were females. Most of the cases were admitted after about 5 days of fever outside.

Treatment

From the time of admission the patients were given a saline drink freely and vitamin C 100 mg. daily and adequate dose of vitamin B complex.

The treatment with laevorotatory chloramphenicol* was started 48 hours after admission and after the bacteriological diagnosis had been obtained. The dosage adopted was 1 tablet (250 mg.) every half an hour for the first two hours followed later by one tablet every 4 hours till the temperature touched normal. Thereafter 1 tablet every 8 hours for 8 days and 1 tablet twice a day for 2 days. The temperature usually touched normal in the course of 48 to 96 hours, after administration of 4 to 7 g. on an average.

A typical temperature chart is annexed (Fig. 1).

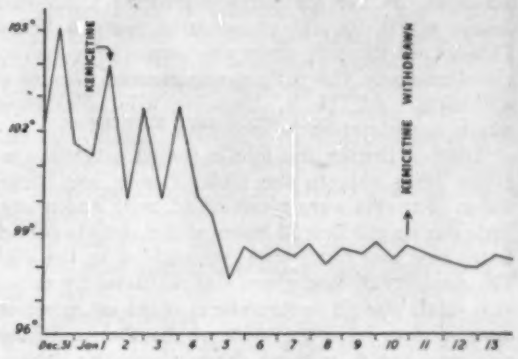

Fig. 1

The temperature response was early when the treatment was started within the first 10 days or after the 16th day of fever. The response was slow when the treatment was started during the 10th to 16th day of fever.

Two patients who apparently acquired infection from patients treated with chloramphenicol at home responded slowly and required a larger dose of the drug.

One patient who had prophylactic T.A.B. vaccine during the incubation period was also treated with the drug. He too responded well but the doses required were slightly higher than the average, and it took 4 days for the temperature to come down.

* The drug used was Kemicetine, a proprietary preparation.

One patient treated with aureomycin prior to admission also responded slowly to the action of the drug and required a larger dose.

The incidence of peripheral collapse is high when the treatment is started late *i.e.* after 12 days of fever.

As prolonged antibiotic therapy leads to vitamin B-complex deficiency as evidenced clinically by stomatitis, and red raw tongue, massive doses of B-complex were given from the first day and continued up to the end of the first month of convalescence.

Adequate intake of fluid was ensured by giving 6 pints of fluid daily in the form of milk, barley water etc.

Where there was evidence of insomnia and restlessness, barbiturate was administered at bed time, ensuring sound sleep for at least 6 hours.

In cases where delirium supervened, lumbar puncture was carried out, with great relief.

In two cases where the patients were admitted after 15 days of fever and with signs of severe toxaemia, ACTH was administered for 1 day in a dosage of 10 mg. intramuscularly every 6 hours. This helped to bring down the temperature earlier. Simultaneously the patient experienced a sense of wellbeing. ACTH is, however, contra-indicated where a perforation is suspected.

DIET: During the febrile period patients were given fluids only in the form of milk and barley water. Patients were given bread, milk and orange juice during the first 72 hours of the afebrile period. Later rice and buttermilk were added to the diet. The quantity of food given was regulated by noting any small rise in temperature, signs of intestinal distension and any evidence of diarrhoea. Distension was noted in those cases where the patients had received glucose without the knowledge of the attending staff. Absolute avoidance of glucose and administration of rectal saline relieved the distension completely.

TREATMENT OF COMPLICATIONS: Distension of the abdomen, if present at the onset, disappeared with the specific treatment with antibiotics. Very rarely dietetic restriction was necessary.

The mild headache usually disappeared with the administration of the specific drug but severe headache, if present at the time of admission, persisted for 2 days in spite of the antibiotic. No analgesic was given to relieve the headache.

The specific antibiotic also controlled the diarrhoea which might have been present at the time of admission. Diarrhoea as a complication of the drug or as a result of diet was not met with.

Intestinal haemorrhage was seen during the course of treatment in 4 cases for which blood transfusion, and injections of thromboplastic substances and vitamin K were given. All the patients rallied.

One case with an intestinal perforation which had occurred prior to admission, was admitted in the surgical ward, operated on, and transferred to the medical ward on the 7th day. The antibiotic was given in the surgical ward, and on transfer to the medical side the drug was continued. The patient developed post-operative distension of the abdomen which was not controlled by energetic treatment. The patient died on the 10th day after operation.

Two patients who developed aphasia during the course of treatment were put on tolazoline hydrochloride (1 tablet every 6 hours). Complete recovery occurred at the end of 48 hours.

Complications like boils, parotitis, neuritis, thrombophlebitis, otitis media, osteomyelitis and iritis which were met with during the year 1952-53 were not encountered in the present series.

The dreaded complication of peripheral collapse after drug administration which is said to be the result of excessive fluid and sodium loss and the sudden release of toxins was not met with. This was probably due to the adequate quantities of fluid and sodium chloride given throughout the course of the disease. Similarly the early administration of vitamin B-complex prevented the occurrence of neuritis and boils.

All the cases were followed up for a period of 21 days after discharge. No case of relapse was observed in the reported series.

DISCUSSION

The observation that the blood level of the chloramphenicol is comparatively higher when administered in the form of tablets is amply borne out by our experience with the clinical trial of Kemicetine. The drug in tablet form was effective in controlling the temperature within a shorter period and in a lower dosage. The total dose of the drug required was about 12 to 17 g. Similar response was obtained in Calcutta by Roy Chowdhuri, *et al* (1953).

The drug was well tolerated by all the patients without any evidence of untoward symptoms. Mortality in the treated series was nil. The only death which occurred was as a result of intestinal perforation which had occurred prior to admission in the hospital.

Most of the patients were discharged on the 15th day after admission and were able to resume their normal work about 15 days after discharge from hospital.

SUMMARY

1. 85 cases of typhoid fever were successfully treated with laevorotatory chloramphanicol tablets with no relapse.

2. Complications due to the drug were nil.

3. 2 cases of aphasia and 4 cases of intestinal haemorrhage were met with during the course of treatment and were treated successfully.

4. Fluid and electrolytic imbalance and B-complex deficiency were anticipated and treated.

5. The drug in the tablet form is effective in small doses.

ACKNOWLEDGMENT

My thanks are due to Dr. K. N. Pisharoty, Dean, Stanley Medical College and Hospital, Madras and to Dr. G. Victor, Physician, Stanley Hospital and Lecturer in Clinical Medicine, Stanley Medical College, under whom the patients were admitted.

Thanks are also due to the House Physicians of our unit: Drs. Miss Janaki, Miss Leela George, Ayyamperumal, Muthu, Sankararaman, Santhanakrishnan and Jagadesan.

Addendum—After the preparation of the above manuscript, 65 more cases of typhoid fever were treated on the same lines under Dr. M. D. Ananthachari, Professor of Medicine, Stanley Medical College, in the same ward. In 4 cases, intramuscular chloramphenicol (Kemicetine sterile solution 1 c.c. containing 100 mg.) was used. Dosage was 4 c.c. deep intramuscular to start with, and then 3 c.c. every 12 hours. Oral administration was resumed as early as possible. These patients were unconscious and delirious, and hence oral administration was not possible. The injection was painless and no untoward symptoms were met with.

REFERENCE

ROY CHOWDHURY, A. K. *et al*—*Antiseptic* : **50** : 861, 1953.

REFRESHER COURSE

DIAGNOSIS AND TREATMENT OF MALARIA

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DIAGNOSIS

I. CLINICAL :

Malaria is the commonest cause of fever especially in rural areas. Remembrance of this possibility is the first step towards diagnosis. The following points should be helpful :

History—An enquiry should be made of the patient's recent residence or movements in a malarious area especially during the malaria transmission season ; it may, however, be encountered any time of the year. History of previous attacks of malaria is suggestive, but usually the infection is unlikely to remain latent for more than a year after an attack. Possibility of infection from a recent blood transfusion should also be remembered.

Periodicity of fever—This is an important clinical feature. Fever at intervals of 48 or 72 hours is pathognomonic of Vivax or Benign Tertian (BT) or Quartan malaria. But in Falciparum or Malignant Tertian (MT) malaria the fever is often irregular, it may be remittent, intermittent or even absent. The fever in primary attacks of malaria is frequently atypical. An infant, for instance, during the first attack of BT malaria, usually has a remittent fever.

Paroxysms (cold, fever and sweat) often with nausea and vomiting in the forenoon or early afternoon with rapid defervescence of fever within a few hours are suggestive of malaria but may be absent.

Enlargement of the spleen—This is a common sign. But in an early severe case it may not be palpable and fails as a clinical guide. Moreover, the palpable spleen may be the result of past malaria and the present illness may be an entirely different disease. Besides, its enlargement may be due to other conditions such as typhoid fever. It is, therefore, important to know if the spleen is enlarging.

Appearance—Pale, icteric appearance of the patient with herpes labialis is very suggestive of malaria.

Therapeutic test—If with 20 grs. of quinine salt in solution in divided doses daily for 3 days the temperature does not come down, it is not malaria. If it comes down it may or may not be malaria.

II. BLOOD EXAMINATION :

Definite diagnosis depends on finding asexual parasites in the blood. This is the most important procedure in the diagnosis of malaria. Blood should be examined whenever possible or the smear taken, if there is chance of its being examined later on, before giving any specific drug. Thick and thin films are taken, properly labelled, and wrapped in a paper so that insects may not destroy the smear. It would be advisable not to take the blood during or soon after the rigor, but sometime later, when parasites are grown in size ; or better taken twice during the day. Blood may be taken even if the patient had taken one or two doses of antimalarial drug ; the parasites do not usually disappear from the peripheral blood so quickly. Finally, the smear should be properly stained and examined by an

experienced person, and mistakes due to platelets, artefacts, precipitates etc., should be carefully avoided.

Preparation of a blood film is a simple procedure, yet it is amazing how seldom it is done well. The slide should be clean and grease-free. If necessary, it may be washed with soap and water, soaked in alcohol, dried and flamed. In a thin preparation, in cases of BT malaria, all forms of parasites are seen in the peripheral blood, and red cells are often enlarged, pale and contain Schuffner's dots, while multiple rings in one corpuscle, presence of double chromatin dots, Maurer's dots, accole forms and crescents are often seen in MT infection. Band forms of parasites are commonly seen in Quartan malaria. Presence of malarial pigment is also helpful in diagnosis.

For demonstration of parasites the thick film is far superior to the thin film technic since in light infections it may be difficult to find parasite in the thin film. The thick film will yield 3 to 4 times as many positive findings. It may be necessary, however, to examine stained thin blood films for identification of the species of parasites present. When thick films are negative, subcutaneous injection of ½ c.c. of 1-1000 adrenaline solution may be followed by the appearance of parasites in the peripheral blood. Four or five smears should be taken at intervals of 15 minutes after the injection. Examination of marrow smear has no special advantage over the peripheral blood. Cultivation of blood for malaria parasites has some value.

Demonstration of parasite in the blood obviously signifies malarial infection although the patient may have an intercurrent infection. Presence of one species of parasite does not, definitely preclude the possible presence of other species. On the other hand, there are occasions when negative blood reports are received in a malaria case. Therefore it would be wise to institute specific therapy in a case in which other evidence points to malaria.

The total white cell count shows a more or less normal figure often with a high mononuclear percentage. The increase in large mononuclears to over 10 per cent is suggestive. Malarial pigment, haemozoin may be seen in the leucocytes ; it is pathognomonic of malarial infection.

III. PITFALLS :

Malaria may be confused with various conditions *viz.*, (alphabetically) amoebic liver, B. coli infection, cerebrospinal fever, dengue, endocarditis, enteric fever, filariasis, gall-bladder disease, heat stroke, infective hepatitis, kala-azar, local inflammation, organic disease of CNS, Phlebotomus fever, pneumonia, spirochaetal diseases (false positive WR is frequent in malaria), tuberculosis, undulant fever, Weil's disease, etc. In the tropics malaria must be considered and excluded in any acute condition. Malaria with acute abdominal pain differs from acute intra-abdominal disorders in that in malaria there is no reflex spasm of abdominal muscles and the white cell count is not usually raised. The onset of cerebral malaria may be sudden or gradual and the clinical picture may be varied. It may be mistaken for acute alcoholism uraemia or diabetic coma. In children convulsions are a frequent presenting symptom in malaria.

It should be noted that pernicious malaria may be confused with many diseases. This is inevitable in view of the pathology which consists mainly of mechanical interference with the vascular supply that may occur in various organs of the body. Algid forms of malaria may simulate cholera, but vomits and motions contain bile, and the rectal temperature is frequently high. In the bilious remittent type jaundice appears about the second day, earlier than in infective hepatitis, Weil's disease and yellow fever and later than in blackwater fever. Dehydration and disturbance of the alkali reserve and of mineral balance may develop rapidly.

Latent malaria may be provoked by an accident, surgical operation, child birth, x-ray examinations of the abdomen, exposure to chill or injections of adrenaline for asthma. In these conditions the possibility of malaria is apt to be overlooked and serious consequences may follow.

TREATMENT

Until the early thirties quinine was the only drug since its introduction in the 17th century. A second drug plasmoquine or pamaquine, a synthetic product was introduced in 1926. Then in 1931, atebrin was introduced as a real challenge to quinine. The Germans subsequently pushed on from atebrin and discovered resochin which the Americans developed under the name chloroquine, and a variation of this was camoquin. The British developed a diguanide compound *viz.*, proguanil or paludrine and recently a new compound, pyrimethamine was introduced under the name daraprim.

Thus a long procession of antimalarial drugs has been witnessed in recent years, but it takes some years to assess their real value. The preliminary reports on small trials are often not substantiated by larger trials on different strains in different countries. For instance, single dose treatment with paludrine has now been discarded. Its action is far too slow in spite of large repeated doses, and the combination of a more potent drug with paludrine has therefore, been advocated especially in MT cases. Furthermore, another

difficulty has arisen in the development of drug resistance. Even MT parasites naturally resistant to the drug have been encountered. With daraprim failures have been encountered especially in MT malaria, and it is apt to cause toxic symptoms if the doses are increased. Daraprim-resistant cases have been found and cross resistance between paludrine and daraprim has also been reported.

So we have really 3 dependable drugs to use in controlling an acute attack of malaria *viz.*, quinine, mepacrine and 4-aminoquinoline derivatives, such as chloroquine or camoquin, the last ones being most active. Quinine is an indigenous drug of permanent reputation, while the latter are imported drugs, and we have not all the raw materials to synthesise them.

Quinine.—Quinine is commonly used as sulphate containing 83 per cent base. Totaquina and cinchona febrifuge are cheaper preparations. The drug can be used as a mixture or a tablet. The tablets are better broken up before administration. The more soluble salts are used for injections and their solutions in ampoules are available. One should, however, be careful to obtain genuine preparations. Given by mouth quinine is rapidly absorbed, appearing in urine in 20 minutes, and continues to be excreted for 24 hours. It is rapidly metabolised, so that 24 hours after ingestion it loses 90% of its plasma concentration. An effective plasma level is 3 to 5 mg per litre of blood which has to be maintained by repeated doses as it does not accumulate in the body.

For average malaria in semi-immune population the dose of quinine sulphate is 15 to 20 grains in divided doses daily for 5 to 7 days. Any dose vomited out should be repeated. An alkaline mixture is given half an hour before each dose. The advantage of such a short therapy is that minimum quinine is used and it also encourages the development of immunity. This treatment is followed by suppressive therapy, *viz.*, weekly paludrine, 300 mg. or fortnightly chloroquine 3 tablets (0·45 g. base) or camoquin 2 tablets (0·4 g.) for 6 to 8 weeks whereby MT infection is usually cured. In a rural area an individual may continue the suppressive dose for a long period, whereby reinfection as well as late relapses of BT malaria are usually suppressed.

In non-immune subjects and specially in more severe MT cases the dose is increased for the first two days *i.e.* 10 grains of the salt are given t.d.s. for 2 days, and then b.d. or 5 grs. t.d.s. This is followed by suppressive therapy as stated above.

If oral administration is not possible, as in excessive vomiting, quinine is given intramuscularly with strict aseptic precautions in the upper and outer quadrant of the buttock. Ten grains of the soluble salt dissolved in 5 c.c. redistilled water, is injected intramuscularly, and the part is massaged.

In cases of pernicious malaria, 5 to 10 grains of quinine bihydrochloride in 20 c.c. or more of sterile normal saline is given very slowly at the rate of not more than 2 c.c. per minute. As the effect of I.V. quinine passes off quickly, an intramuscular injection may be supplemented about the same time. Injections may be repeated after 6-8 hours but oral therapy should be substituted as early as possible. During Burma evacuation and Bengal famine in 1943 the writer followed the practice of giving 10 grs. I.M. and 5 grs. I.V. in 20 c.c. of saline about the same time soon after admission of such a case to the hospital and prescribed quinine mixture with instruction to be started as soon as the patient could take it by mouth. No untoward effect was observed in any. Patients having nasal feeds were given quinine mixture with the drip. Dehydration commonly present in these cases is adequately combated at the same time.

Mepacrine.—Mepacrine is rapidly absorbed and stored in liver etc. It is therefore, necessary to give large initial doses in order to satisfy storage capacities quickly. The drug is excreted slowly ; complete elimination takes 5 to 7 weeks. Dosage suitable for average Indian patient is 0·2 g. (2 tablets) t.d.s. on the first day followed by 0·1 g. (one tablet) t.d.s. for 3 days.

Even a single dose of 0·6 g. (two tablets at a time given at intervals of 10 minutes) is effective for clinical cure of average malaria which might be the cheapest therapy suitable for rural dispensary practice. This should be followed by suppressive therapy at regular intervals as stated above, or two to three tablets of mepacrine may be taken regularly once a week.

4-aminoquinolines.—The most rapidly acting antimalarial drug at the moment is chloroquine (*synonyms*—aralen, resochin, nivaquine B, SN-7618) or its later derivative, camoquin, (SN-10,751). Given by mouth they are rapidly absorbed and localised in the liver and other organs, their degradation and excretion being very slow. The clinical attack is terminated quickly and the relapse rate is also low. Another advantage is that they are effective in a single dose of 0·6 g. (base) for average malaria. They are useful for mass treatment of malaria and dispensary practice in rural areas, being more effective than mepacrine but more costly. This may with advantage be followed by suppressive therapy, *viz.*, fortnightly doses og 0·4 g. to 0·6 g. of camoquin or chloroquine for 6 weeks or more.

In non-immune subjects and in more serious cases the drug may be repeated for the next 2 days as follows :

1st day	*2nd day*	*3rd day*
CAMOQUIN		
3 tablets (0·6 g. base)	2 tablets (0·4 g.)	1 tablet (0·2 g.)
CHLOROQUIN		
4 tablets (0·6 g. base)	2 tablets (0·3 g.)	2 tablets (0·3 g.)
2 tablet (0·3 g. base after 6 hours)		

In our experience reactions were encountered in 10 per cent of cases treated with chloroquine in divided doses for three days, such as pruritus, insomnia, double vision and even convulsion in a debilitated subject. They, however, subsided soon after stoppage of the drug.

Chloroquine hydrochloride may be given I.M. in a dosage of 0·2 g. marketted in 3 c.c. ampoules as an alternative to quinine.

As a *prophylactic* chloroquine (weekly) is an excellent suppressive and so also camoquin. In a hyperendemic rural area the writer used camoquin, 0·2 g. fortnightly from July to December in a village for two years ; malaria incidence was insignificant as compared to the control village throughout the period. Paludrine 0·3 g. weekly or 0·1 g. bi-weekly is also effective unless one encounters resistant strains.

Although chemoprophylaxis which until recently played an important role in the control of malaria has been relegated to a second place by the discovery of modern insecticides *viz.*, DDT and Gammexane, this therapy is indispensable for the control of an epidemic and for the suppression of malaria in localities where insect control is lacking. A village farmer taking it regularly during the malaria transmission period may pursue his work without being laid down with malarial attacks during the period.

The results of chemotherapeutic and chemoprophylactic trials carried out by the writer in malaria over a period of 4 years were statistically analysed. From these observations effective dosage schedules of antimalarial drugs suitable for average Indian (semi-immune) population to effect clinical cure were worked and accordingly a regime of specific treatment and suppression was prepared (Table 1).

Quinine equivalents of other antimalarials.—Based on the above dosage, one pound of quinine sulphate is therapeutically equivalent to 4 oz. of mepacrine, 5·6 oz. of proguanil and 1·6 oz. of chloroquine or camoquin.

Dosage for children.—The dose of quinine for children in grains is calculated as 1 gr. plus half the age in years, *e.g.*, for a child of 6 years, 1+6/2=4 grs. This is best given twice a day in treacle or honey. The daily dose of mepacrine is 0·05 g. up to one year, 0·1 g. up to six years and 0·2 g. up to 12 years given in divided doses. The dose is doubled on the first day. Children above 12 years are given the adult dose of paludrine, those between six and twelve years are given half and those under six, a quarter of the adult dosage respectively. No child, however young, need be given less than 0·025 g. at any one time. With regard to 4-aminoquinolines children are given proportionately smaller doses, *viz.*, chloroquine, ⅓ to ¼th, camoquin ⅓ to ⅕rd and daraprim ½ to ¼th the adult dose. Cases having single dose therapy should be watched and the dose repeated if necessary.

PRESENT POSITION.—Mepacrine is now the cheapest antimalarial, although it seems to have lost its popularity apparently due to occasional untoward manifestations and advent of newer drugs. Proguanil and quinine are the next cheap drugs, but the former has some drawbacks as recently recognised and is not dependable alone in acute attacks of malaria. Under the circumstances, for mass treatment of malaria where efficacy and cheapness are important considerations an acute attack should be treated with quinine. Alternately, a single dose of camoquin, chloroquine or even mepacrine can be used. Relapses and reinfections may be suppressed with regular (weekly or even fortnightly) administration of one of them. The principle of clinical cure with a short therapy followed by the suppressive therapy is advocated for mass treatment in rural areas. This along with anti-mosquito measures will go a long way in eradication of malaria which is essentially, a disease of the rural areas and its influence upon agriculture, the chief occupation, is now seriously recognised as one of the foremost problems of the day.

A combination of primaquine and quinine is the best form of treatment for relapsing vivax malaria in non-endemic areas ; it brings down the relapse rate to as low as 10 per cent. Alternately suppressive therapy is recommended with weekly or fortnightly doses of synthetic drugs as long as possible which will incidentally also suppress reinfections in endemic areas.

To sum up the therapy for malaria should include :

(1) *Treatment of the attack of malaria* to effect clinical cure as rapidly as possible by destruction of asexual parasites in the blood, *viz.*, by administration of quinine, 4-aminoquinolines (camoquin, chloroquine), mepacrine, paludrine or daraprim. The order of superiority or preference is arrived at by consideration of antimalarial activity, speed of action, availability, toxicity and cost. Of the currently available drugs the 4-aminoquinoline is the most quickly acting drug. Quinine should have

TABLE 1—TREATMENT OF MALARIA IN THE ADULT SEMI-IMMUNE PATIENTS

	Anti-malarial activity			*Therapeutic*		
	Asexual forms	Gametocyte	Usually afebrile within (in days)	Oral (in average malaria)	Parenteral (in emergency & if orally not possible)	*Suppressive (prophylactic)*
QUININE ...	+++	BT (+) MT (−)	3	15-20 gr. in divided doses daily for 5-7 days (preferably as mixture for 1st 3 days).	Q. bihydrochloride 5-10 gr. I.V. (slowly with 20-50 c.c. saline). Q. hydrochloride 10 gr. I.M. aseptically. Repeat after 6 hours if required, but replace by oral therapy as soon as possible.	
MEPACRINE ...	+++	do.	3	0·2 g. t.d.s. first day, 0·1 g. t.d.s. next 5 days.	Mepacrine methane sulphonate 0·3 g. I.M. (in case of quinine intolerance).	
PALUDRINE ...	++	do.	4	0·3 g. twice first day and once daily next 4-5 days. Follow by 0·3 g. weekly for 6 weeks. *N.B.* Not always dependable in MT cases.	Paludrine lactate: Not recommended.	0·1 g. bi-weekly or 0·3 g. weekly
CAMOQUIN ...	++++	do.	2	Single dose—0·6 g. base (3 tablets of 0·2 g. each).		0·2 g. weekly or or 0·4 to 0·6 g. fortnightly.
CHLOROQUINE (Resochin, Nivaquine)	++++	do.	2	Single dose—0·6 g. base (4 tablets of 0·15 g. base each).	0·2 g. base I.M. Repeat after 8 hours.	0·3 g. weekly or 0·6 g. fortnightly.
DARAPRIM ...	++	do.	3	50 mg. daily for 2 days. Not dependable in MT cases.		25 mg. weekly.
PAMAQUIN ...		++		For gametocyte carrier—0·01 g. t.d.s. for 3 days. For persistently relapsing BT malaria give it along with quinine for at least 10 days (for those going to live in non-endemic areas).		
PRIMAQUIN ...		++		Reported less toxic than pamaquin; 15 mg. daily with quinine for 10-14 days, for relapsing BT malaria.		

the first preference in this country, being an efficient indigenous drug of long established reputation. It is still the drug of choice in pernicious malaria.

(2) *Prevention of the spread of the disease* by destruction of gametocytes which do not affect the patient but infect the mosquitoes that may bite him by giving plasmoquine, pamaquine or primaquine for 3 days say after the quinine treatment.

(3) *Prevention of relapses*—not only by destroying all asexual parasites in the blood but also tissue or other forms which cause relapse. BT malaria is apt to relapse, but the relapse rate can be considerably reduced by simultaneous administration of pamaquine or primaquine and quinine. This therapy is indicated for stubbornly relapsing BT malaria in an individual living in a non-endemic area where there is no risk of reinfection and should be carried out under medical supervision. In rural areas attempt to achieve radical cure is not made, the best that can be done as already stated, is simply to control the attack and clear the circulating blood of parasite by a short course of treatment and then place the patient on suppressive regime for 6 weeks or more to avoid early recurrences.

In MT cases, because of the apparent absence of persistent e-e forms, radical cure may be possible

by giving quinine, mepacrine, chloroquine or camoquin in full doses followed by suppressive therapy for 6 weeks.

(4) *Suppression of malaria, i.e. clinical prophylaxis*—by destroying asexual parasites in blood, not necessarily all of them. They are kept in subclinical level by regular administration of a suitable synthetic schizonticidal drug given at regular intervals. The best practical measure would be to give one weekly dose of camoquin or chloroquine on the same day of the week for 6 months during the malaria transmission season *viz.*, from July to November ; even fortnightly doses are effective if taken regularly. The rare overt attack can be treated as an acute attack and the suppressive treatment resumed again. The writer has been convinced of its efficacy by his continued experiments for about 5 years in hyperendemic rural areas without any anti-mosquito measures. Paludrine is also effective and cheaper unless one encounters paludrine resistant strains of parasites, when it has to be switched on to 4-aminoquinolines.

GENERAL TREATMENT :

This would include :—

(1) Rest in bed during fever.

(2) Warm covers during rigor. An injection of calcium gluconate 10% 5 c.c. intravenously gives considerable relief quickly.

(3) An alkaline mixture.

(4) Aspirin for headache and pains and sedative, if required, for sleep at night.

(5) Intravenous glucose (5 per cent) saline if there is severe dehydration. This is an important adjuvant to specific therapy in 'algid' cases, taking care to avoid pulmonary odema. It is given rapidly at first. Quinine bihydrochloride gr. 7½ (gr. 5-10) is added to the last 400 c.c. of the saline and then it is given *slowly*. Stimulants like coramine and percorten are helpful. Blood transfusion may have to be considered if there is severe anaemia. Intravenous therapy is however, not well suited in infants.

(6) Lumbar puncture may be needed in cerebral cases with administration of 50% glucose solution 50-100 c.c. I.V. and rectal magnesium sulphate 25% solution, 6 oz.

(7) Restlessness and convulsion in cerebral cases should be controlled with intramuscular luminal sodium or intravenous pentothal sodium.

(8) Bowels are kept regular by laxatives, if necessary.

(9) Palliative treatment for hyperpyrexia, vomiting etc. High fever is best attacked by the specific therapy.

(1) Diet. Milk diet is best during fever with quick return to 'normal' diet after the fever subsides with the specific treatment.

Convalescence—In convalescence give a good diet supplemented by iron and arsenic mixture after meal for 10 days or more. Then put the patient on suppressive therapy if possible for 6 weeks or longer.

Chronic Malaria—This term refers to attacks of malaria due to relapses or to malarial cachexia with splenomegaly. If the individual is neglected and untreated he has to depend on the hyperplasia of the reticulo-endothelial tissue in destroying the parasites and incidentally this also destroys the red cells. Along with the reticulo-endothelial hyperplasia there is an increase of the fibrous supporting tissue, so that the spleen becomes large and hard. It appears that multiplicity of malaria attacks does not in itself cause much enlargement of the spleen ; it depends on the period allowed to go untreated, the spleen having to exercise its parasiticidal function. The patient becomes weak, anaemic and emaciated with considerable enlargement of the spleen and moderate enlargement of the liver. He may be afebrile or have persistent irregular pyrexia but parasites are often not found in the blood. The condition worsens if he has to thrive on a poor diet. Treatment in these cases should begin with a full course of quinine to be followed by a suitable suppressive therapy, weekly or fortnightly for a fairly long period to ensure against recurrence of malarial attack especially if the individual cannot leave the endemic area. General health should be attended to by giving generous diet with extra proteins and vitamins. This is very important though it may not always be possible owing to economic reasons. Associated infections, *e.g.* hookworm, amoebiasis, *etc.*, if any should be eradicated and anaemia adequately treated with suitable haematinics, *viz.*, crude liver extract 4 c.c. intramuscularly daily for 6 days and then another 6 injections bi-weekly, and an iron preparation as ferrous sulphate, ferri et ammon citras which may be suitably combined with arsenic. Cases with hypersplenic syndrome may require splenectomy.

BLACKWATER FEVER

It is gratifying to note that there has been a marked decrease in the incidence of blackwater

fever during the last 10 years. Treatment may be outlined as follows:

(1) *Bed rest* and careful nursing are essential owing to severe anaemia and risk of cardiac failure. Phenobarbitone or bromide may be given to ensure rest.

(2) *Feeds* of fluids about 5 pints daily (but if urine is diminished give approximately 1½ times the urine output in 24 hours). Plain water, *dab* water, glucose drinks, barley water, fruit juice *etc.*, are usually given. If orally not possibly fluids are given parenterally. Later add milk, solids etc.

(3) *Alkalies*—A mild alkaline mixture is given 2-4 hourly (may be mixed with a drink) to make the urine alkaline, but alkali treatment must not be too vigorous to avoid alkalosis. It should be reduced when the urine becomes alkaline merely to maintain a slightly alkaline reaction.

(4) *Vitex Pedunculatis*—Pedunculine, 3 c.c. I.M. followed by Tincture or Extract by mouth till urine is clear for 2 or 3 days. It has some antihaemolytic property.

(5) *Glucose* solution, 25% 50-100 c.c. with vitamin C 500 mg. may be given daily during the acute phase.

(6) *Antimalarials*—In treatment of accompanying parasitaemia a single dose of camoquin or chloroquine 0·6 g. is given. Quinine, mepacrine or pamaquine is avoided.

(7) *Symptomatic treatment* for vomiting, hiccough, fever, pains, sleep etc.

(8) *Circulatory stimulants*—Suprarenal cortical extract, and/or diffusible stimulants may be required. Vascular failure may be treated by I.V. plasma followed by I.V. saline with isotonic glucose solution.

(9) If there is *anuria*—Restrict fluid orally and omit salt; give 10% glucose solution about 750 c.c. by I.V. drip daily. Or Bull's mixture may be tried, which includes glucose 400 g., peanut oil 100 g., acacia *q.s.* and water to a litre given in 24 hours with vitamin supplements. Diuretics are avoided.

(10) If there is severe *anaemia* blood transfusion is indicated, provided there is no anuria.

Convalescence should be slow (complete bed rest for at least 10 days) with gradual increase of nitrogenous diet, haematinics (liver extract by injection and ferrous sulphate by mouth) and vitamins. Prevent relapse of malaria by suppressive therapy.

Comment

Lastly, it is needless to stress that malaria is still the most prevalent disease in India and is the cause of much morbidity, mortality and economic loss. It has been responsible for decay of many villages in the past. As it is conveyed by the bite of mosquitoes, it should not be difficult to eradicate, at least reduce it, now that we have got insecticides like DDT which can be sprayed at periodical intervals on to our dwelling houses. Already this is being done in many places with great relief to the villagers. Where this is not possible, use of mosquito nets with weekly or even fortnightly doses of one of the potent synthetic antimalarial drugs will go a long way in making life comfortable during malaria seasons. But it would be hasty to assume that DDT has solved the problem. Anopheline mosquitoes with significant resistance to DDT have already been found in Greece. There is still great need for entomological, sanitary engineering, chemical and clinical research in the laboratory, in the hospital and in the field for further developments in our knowledge of malaria.

KERATOMALACIA: CAUSES, DIAGNOSIS, TREATMENT AND PREVENTION

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Causes

Keratomalacia, essentially a disease of babies and children (78 per cent below the age of 5 years), is due to vitamin A deficiency in the system. It is the commonest cause of blindness in children below the age of 5 years.

The causes of vitamin A deficiency are:

A. *Insufficient supply of vitamin A in food*:

1. The only source for a baby is mother's milk. It is a great tragedy in a baby's life if the mother dies or is too ill to nurse the baby; so also in the case of young children who do not get sufficient milk or green vegetables.

2. Overboiling of the milk may destroy most of its vitamin A content by oxidation.

3. In the treatment of diarrhoea, dysentery and other gastro-intestinal troubles, lime whey only and other diets without milk cause deficient supply. Insufficient supply has got to be of some duration before even early signs or symptoms appear.

B. *Insufficient absorption from gastro-intestinal tract*: This seems to be a very important factor in causing vitamin A deficiency in babies and children. The gastro-intestinal disturbance in babies and young children is often due to the ignorance of mothers in feeding the babies with proper food, in proper quantities, and at proper intervals. As a matter of fact whenever the baby cries he is pacified either with the breast, sago-water, barley water or sugar water, with or without cow's milk in any proportion each mother chooses. All cases of diarrhoea and dysentery from any other cause may lead to vitamin A deficiency.

C. *Inefficient synthesis and storage in the liver*: This happens in all cases of obstructive jaundice of some duration from any cause.

D. *Excessive utilisation of the vitamin A in the system in some acute infectious fevers e.g.*, small pox.

Diagnosis

The eyes are affected in the late stages of vitamin A deficiency. So a child suffering from keratomalacia can be easily made out even from a distance. The child is emaciated with prominent belly, thin upper and lower extremities. The skin of arms and forearms, thighs and legs is dry and can be easily pinched up. The skin of the neck is wrinkled when he turns to one side, these are all due to loss of subcutaneous fat. Hair is dry and scanty. There may be oedema of the dorsum of the feet (nutritional oedema). The voice is either hoarse or squeaky often associated with dry cough due to changes in the epithelium of respiratory tract. Mouth is dry due to affection of the epithelium of the salivary glands. The eyes are usually closed due to photophobia. Diarrhoea is often present due to changes in the epithelium of the gastro-intestinal tract. So the diarrhoea may be the cause and also the effect of vitamin A deficiency. High coloured urine is due to changes in the epithelium of the urinary tract. Syphilis is not usually an associated factor.

The ocular manifestations of vitamin A deficiency are divided into 6 groups.

Group 1—Nightblindness (hemeralopia) without any pathological changes in the eye or the optic nerve.

Group 2—Conjunctival manifestations—loss of lustre, pigmentation, xerosis and Bitot's spots, either alone or in combination.

This requires special consideration. The pigmentation of the conjunctiva is fairly common amongst people, who, on account of their occupation, have to spend long hours out of doors in the strong glare of the tropical sun *e.g.*, coolies, rickshawpullers, hackney carriage drivers, hawkers etc. Strong glare of the sun may be responsible for the production of pigment in the potential melanoblasts in the basal layer of the conjunctiva specially at the limbus and caruncle. The colour varies from light brown to deep brown, marked in the bulbar conjunctiva and much darker (often mistaken for argyrosis) in the lower fornix and caruncle.

The xerosis (dryness) of conjunctiva and Bitot's spots—localised dryness, triangular in appearance with base towards the limbus, situated mostly on the temporal side in the palpebral fissure of both eyes is often seen. It is covered with a white foamy substance, produced by rubbing of oily meibomian secretion and salty tear against the rough surface of dry conjunctiva. This foam can be easily rubbed away. On removing the foam, small spots, grey and sometimes white in colour are seen in the dry patch of conjunctiva. These are Bitot's spots. When the patient looks towards the lateral side, the dried conjunctiva is thrown into folds.

The pigmentation of conjunctiva alone or in combination with xerosis and Bitot's spots are not necessarily signs of vitamin A deficiency.—On dark adaptation test with biophotometer we found that only 41 out of 193 cases of conjunctival pigmentation alone (21 per cent) were deficient in vitamin A and 11 out of 75 cases of conjunctival pigmentation with xerosis and Bitot's spots (14 per cent) were deficient in vitamin A.

Pigmentation of conjunctiva with or without Bitot's spots can be of diagnostic value if the dryness with loss of lustre is present in the whole of bulbar conjunctiva and conjunctiva winkles and is thrown into folds in all directions of gaze, provided this is not due to diseases like trachoma, essential shrinking of conjunctiva, etc.

Group 3—Prexerosis, first described by Pillat, is the earliest stage of keratomalacia. There is very slight loss of lustre of the corneal epithelium evidenced by less brilliant "window reflex" (image of the window, seen on the cornea, formed by the corneal epithelium). Consequently there is very slight haze and dryness of the cornea. The dryness becomes more marked if the cornea is kept exposed to the air even for half a minute. The sensitivity of the corneal epithelium becomes less as tested by a little cotton wool.

Group 4—Keratomalacia without breaking down of the corneal epithelium. Pre-ulcerative stage. Cornea is dry and lustreless, sensitivity is so reduced that there is no blinking reflex on touching the cornea with cotton wool. Patches of light grey colour appear on the epithelium, most marked in the palpebral fissure. Areas of infiltration (really of degeneration) appear in the deeper layer of the

cornea. They are grey in colour with diffuse margins. There is no ciliary congestion. Hypopyon is sometimes seen in this group and also in the next group.

Group 5—Keratomalacia with breaking down of the cornea—stage of ulceration. When the cornea breaks down, the process goes on very rapidly both on the surface and in depth. Perforation of cornea with iris prolapse takes place rapidly and the whole or part of the cornea may slough out in bad cases. In the absence of secondary infection in the conjunctival sac, there is no reaction *i.e.* no conjunctival or ciliary congestion. The chief symptoms are photophobia and lacrimation. When the parents will give a history that either the baby or the child has closed the eyes and would not open them, it is almost certain that the ulcerations in one or both eyes have taken place.

Group 6—Keratomalacia when the eye is completely lost. In the absence of secondary infection, when the part or full cornea has sloughed out, the area is covered by pseudo-cornea and partial or complete anterior staphyloma results. In some cases, phthisis bulbi results. In the presence of infection in conjunctival sac, panophthalmitis results.

Follicular hyperkeratosis (phrynoderma, hyperkeratosis pigmentosum) is not a sign of vitamin A deficiency, though it may be present in a very few cases of nutritional night blindness (2 per cent), and in keratomalacia (4 per cent). In all doubtful cases in patients of 3 years or over, *i.e.* when the child is walking about freely, it is quite easy to find out whether the child suffers from night blindness. This has got to be found out without asking any direct question. If there is no history of night blindness, there is no vitamin A deficiency. But all cases of night blindness are not due to vitamin A deficiency (*vide* Group 1).

Treatment

1. *In the absence of diarrhoea or dysentery*:

(*a*) In suckling babies, more vitamin A containing food should be given to the mother *e.g.* milk, butter, shark liver oil, cod liver oil etc. but for those who cannot afford these specially in the villages, carrots and green leafy vegetables in small amounts several times daily should be given. If too much of these are taken, mother may develop diarrhoea. In cases when the mother has not enough of milk, humanised citrated cow's milk or goat's milk (this is liked by a large number of mothers in the villages) according to baby's age in proper quantities and at proper intervals should be given.

(*b*) In children in any of the above ways, sweets should be very restricted since too much of sweets may cause diarrhoea. In addition carrots and green leafy vegetables are very useful. If the keratomalacia is of Group 4, no time is to be wasted and vitamin A 100,000 units per c.c. (1 c.c.) should be given by deep intramuscular injection.

(*c*) In elderly persons keratomalacia is mostly due to diarrhoea, dysentery and liver troubles including obstructive jaundice due to any cause of some duration—deep intramuscular injection of 100,000 units of vitamin A is indicated.

2. *In the presence of diarrhoea or dysentery or obstructive jaundice*:

Vitamin A by mouth in any form will not be absorbed. So vitamin A has to be supplied parenterally by deep intramuscular injection.

One should remember that vitamin A is an anti-infective vitamin and when a patient, of whatever age, has developed ocular signs, the resistance of the system must be very low as the ocular signs are late manifestations of this deficiency. So, special precautions have to be taken in intramuscular injections. The site of the injection has to be examined the next day. If there is any sign of inflammation in the area of injection, the vitamin A will, most probably, not be absorbed in proper amounts, and a second injection of 1 c.c. (100,000 units) should be given at a different site. The second injection next day is very rarely required. The eyes are observed every day and improvements in eye conditions are apparent on the 3rd day at the earliest and 4th day at the latest. If there is no apparent improvement on the 5th day, another deep intramuscular injection is given on that day, otherwise second injection is given on the 7th day. 3rd injection is not usually necessary. Intramuscular injections of 100,000 units of vitamin A every day or on alternate days are not necessary since such large amount of vitamin A is neither required by the system nor absorbed or stored in the system and as such most of it is wasted and there is always, though in rare cases, the fear of hypervitaminosis. Moreover, in such lowered condition of the system, no injections, unless absolutely necessary, should be given for the fear of formation of abscess.

Prevention

The saying "Prevention is better than cure" is most applicable in this condition. Keratomalacia begins in late stages of vitamin A deficiency, when in a large number of cases tracheitis and bronchitis have already started, and the resistance to infection is very low. After the onset of keratomalacia, even the best of treatment may not save all eyes and all lives. The most common cause of death is bronchopneumonia.

The prevention of vitamin deficiency in babies must begin long before they are born. Prospective

mother's diet should be easily digestible and assimilable, so that she may not develop any diarrhoea or dysentery. The diet should contain milk, butter, goat's liver etc. and for those who cannot afford these, raw carrots, raw lettuce, other leafy green vegetables should be taken regularly and in small quantities during two principal meals of the day and night. In the absence of all these, one teaspoon of cod liver oil or ½ teaspoon of shark liver oil after meals will help considerably. These supplements in the diet should be carried on for the whole period the baby is breast-fed.

After baby's birth, if the mother dies or is too seriously ill to feed the baby, the very serious problem of feeding the baby arises. Keratomalacia within the first two months of life (10 per cent of all cases) is mostly due to this tragedy. In joint families, in villages and in small towns where community life exists the problem is easily solved, as some other young mother gladly takes up feeding the baby (the writer was brought up by a Brahmin lady for the first 3 months of his life). A wet nurse is the best solution. Otherwise humanised cow's milk given in proper quantities and at proper intervals according to the age and weight of the baby is extremely important. In between the feeds, nothing but cool boiled water should be given. As the baby grows up, supplementary diets should be provided. It should be the duty of the attending physician to provide in chart form the diets and its supplements of baby and child till he reaches one year of age.

The baby has to be kept clean and warm during winter months. All attempts should be made to prevent diarrhoea and dysentery. Babies and children suffering from diarrhoea and dysentery should never be neglected and the treatment should be undertaken as soon as it is detected, and the eyes should be very carefully watched, specially for the earliest sign of dryness of cornea (prexerosis), which will be evident after the cornea is kept exposed to air for a little time. In this case, shark liver oil or cod liver oil in the absence of diarrhoea and parenteral vitamin A (100,000 units) by deep intramuscular injection is immediately indicated.

SUMMARY

1. Conjunctival pigmentation, either alone or in combination with xerosis and Bitot's spots, is not necessarily a sign of vitamin A deficiency. This deficiency was observed in only 20 per cent of cases.

2. Keratomalacia is most common amongst babies and children below the age of 5 years, being 78 per cent of all cases.

3. Keratomalacia is the commonest cause of blindness amongst children below the age of 5 years.

4. Prevention is better than cure. If one looks after babies' and children's food and prevents diarrhoea and dysentery, most cases of keratomalacia will be prevented.

5. Vitamin A by parenteral administration is the quickest and the most effective way of treating the disease. The method is specially indicated in cases associated with diarrhoea and jaundice.

6. If there is no night blindness, there is no vitamin A deficiency but all cases of night blindness are not due to vitamin A deficiency.

PUBLIC HEALTH

HEALTH EDUCATION

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The need for providing health education according to modern concepts was felt in India as outlined in the Health Survey and Development Committee (Bhore Committee) Report. The recommendation included "Provinces be strengthened with properly trained staff and equipment for undertaking health education on an extensive scale and for preparing suitable propaganda material." The Report showed that as late as 1946 though health education was recognised as an important public health function yet its objectives were still being interpreted largely in terms of providing materials for reading and display.

Moreover the techniques of educational programmes were still being compared to the methods of propaganda used by commercial organisations like the Indian Tea Association. Nothing can be further from truth. It is true that propaganda programmes of commercial concerns employ some of the types of aids as used for educational programmes, e.g., pamphlets, posters, films etc. But this does not mean that the two programmes are comparable. As it will be wrong to conclude that the work of a qualified physician and a quack is identical since both of them use the same set of instruments.

The basic difference between a commercial propaganda and an educational programme is the difference between the objectives of the two programmes. The propaganda has some thing to sell and is effective as long as it lasts. Education, however, aims not only at motivating a community

to undertake health programmes, but at helping the individuals of a community to modify the concepts and their living habits so that healthy living is not a special effort but part of everybody's daily life. It is exemplified in the note of caution to a health educator in the words of Guy W. Stewart who mentions,

"Unless the health educator sees human motives and behaviour as a thread in the seamless fabric of a total way of life or culture, both his assessment of and his attempts to modify that behaviour are liable to be fragmented partially and in practice ineffective".*

Principles of a successful health education programme draw strength from the sciences of sociology, psychology and anthropology. These principles are applied to the existing knowledge on health so as to make it understandable by the community. At the same time they stimulate the community to desire all such changes in its environment and way of living as will eliminate the existing causes of ill health. Such expression of desire is known as motivation and will lead to:

1. Better understanding of the health principles and concepts.
2. Better utilization of existing facilities and resources for health and medical care.
3. Increased desire for healthful living.

Communities to Do Their Own Planning

With the creation of a desire for improvement the initial successful phase in community education is completed. The next step should lead to careful planning. It is a well established fact that those who have to carry out a certain programme should also be the ones who have framed the same. Only then will the results be effective and lasting. Hence all temptation to foist a programme on the people should be avoided. The health educator while working with the people will not only be a person who understands the problems of social dynamics but will also be a resource person who has an answer to the questions of the community.

Health education, in the light of the aforesaid concepts includes two fundamentals, health information and health education. While the technique employed in carrying on the work in both fields is more or less the same, yet health education has certain important differences because of the economic, social and psychological background of the community which must be considered in order to achieve any degree of success in education.

As can be seen, health education is directed towards the whole span of life. Its content and methods vary with the age under consideration. Broadly speaking, the field can be divided into two closely allied areas of specialization:

1. *School health education*—This includes an understanding of the needs of the child by the physician, the nurse, the teacher, the parents and the application of those principles of personal and community hygiene which should be known and practised by a school going child.

2. *Community health education*—This includes the life span of an adult in the home and in the community. The Health Department during this phase undertakes to disseminate knowledge about health problems and seeks to stimulate and guide the individual in the solution of these problems largely through his own efforts. This aids in securing effective community action.

Under these two main heads fall the various problems which provide the basis for a health education programme. These may include any of the public health problems i.e. nutrition, maternal and child care, industrial health etc. Therefore a Division of Health Education, though it is now considered to be one of the important units of any health department, has actually no programme of its own in the sense that educational work is not confined to the activities of the Division only. The doctors, nurses and all members of Public Health Staff during the course of their duties can carry on educational work with regard to their specialized fields respectively. It provides consultant services to various other departments but does not replace their education activities. The aims of such a Division of Health Education should be:

(*a*) With relation to the Health Department:
  (*i*) To provide the necessary aid in planning and implementation of the educational aspects of departmental programmes.
  (*ii*) To establish values and standards which can be considered as yardsticks for judging the success of the various programmes.

(*b*) With relation to the community:
  (*i*) To help the community recognize and define its health problems.
  (*ii*) To help the community discover resources suitable for solving these problems.
  (*iii*) To stimulate the community into accepting responsibility for solving its own health problems and become actively interested in the protection and promotion of the health of its individuals.
  (*iv*) To help in the establishment of a community which understands and practises sound health principles.

* Future of Health Education by Guy W. Stewart, M.A., M.Ed., Durban, South Africa.

CASE NOTE

TRAUMATIC RUPTURE OF JEJUNUM

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If for no other reason, physicians are interested in athletics because of the involved hazards to life and limb.

Case Report

B. A., aged 22 years, male was admitted in the E.T.C.M. Hospital on 8-8-1953 complaining of acute abdominal pain. History revealed that one-half hour before admission, while playing football, another player's knee struck the patient in the left abdomen. He experienced excruciating pain as he crumpled to the ground holding his left side. He was able to stand and walk. Because of extreme pain, he was removed to hospital.

Physical examination revealed a well-developed, well-nourished male groaning with pain. There was cold sweat on his face, but he was conscious and was able to describe the incident himself. B.P.—100/60 mm. Hg.; P/R—60/40 per minute; T—97°F. Positive physical findings were limited to the abdomen. There was considerable muscle rigidity in the left mid and lower abdomen. Lower abdomen was very tender even to light pressure. There were no palpable masses, although there was dullness to percussion over the left, lower abdomen. Catheterization revealed no blood in the urine. Rupture of a hollow viscus or contusion of the musculature and possible hematoma was suspected.

During the first 6 hours in the hospital, the patient's condition grew worse. Rigidity of abdominal muscles spread also to the right side. Pain and tenderness increased. Vomiting began. An exploratory laparotomy was decided upon.

A left, lateral rectus incision extended from 2" above the symphysis pubis to 1" above the umbilicus. Upon opening the peritoneal cavity, a thin, light cream-coloured fluid filled the wound. Considerable exudate and friable adhesions had already formed over several hyperaemic loops of small intestine. Exploration of the descending and sigmoid colon revealed no injury. Extensive adhesions were noted in the region of the ligament of Treitz. Breaking these adhesions with a finger, greenish-yellow, semi-solid bowel contents appeared. Further exploration revealed a hole in the jejunum approximately 2 cm. in diameter and located opposite the mesenteric attachment. The perforation was closed with two silk purse-string sutures. Attempt was made at suction of as much fluid as possible from the peritoneal cavity. Sulphanilamide power was sprinkled into the wound and the wound closed without drainage.

The postoperative course was essentially uncomplicated. The patient received tetanus antitoxin, streptomycin, penicillin, soluseptasine, and parenteral glucose 5 per cent in saline. Wangansteen suction was maintained for 24 hours. On the first postoperative day, the temperature went up to 101°F and remained there for 3 days after which it slowly came down. If generalized peritonitis was present, it was of a relatively mild nature. On the 16th postoperative day, there was partial separation of the wound due to infection. Secondary closure with silver wire was successful. The patient was discharged on 29-8-1953.

Discussion

Allen and Welch (1947) discuss the danger of injuries associated with contusion of the abdominal wall: "It is important to remember that intestinal perforation may occur even after minor trauma; no signs of the serious nature of the injury may appear for several hours. The mortality will be high unless laparotomy is carried out within 6 hours of injury. Frequent observation of the patient will show persistent and increasing pain and tenderness. Vomiting usually occurs but may be absent. Injuries of this sort are apt to occur near the more fixed points of the small intestine, especially if due to adhesions from previous surgery. The commonest sites of rupture are the upper jejunum near the ligament of Treitz and the lower ileum near the ileocaecal valve. The mortality from this type of trauma is high, chiefly because of the delay until laparotomy is done. Poer and Woliver, in a study of the literature from 1889 to 1942, found that the total mortality was 71 per cent."

Three common traumatic wounds of the abdomen are stab wounds, gunshot wounds and blunt trauma of a hollow viscus. The danger of perforation in stab wounds tends to be over-emphasized whereas the danger in blunt trauma tends to be under-emphasized. A loop of intestine may side-step a knife blade, but a sudden, blunt, focal invagination of the abdominal wall may trap considerable air in a loop of intestine. An inflated balloon effect results, possibly with the grave consequences of rupture from inside out. The case in question is believed to have illustrated this phenomenon.

Acknowledgment

I am grateful to Dr. Esther Shoemaker and to our "hospital family" for making it possible for me to publish this case.

Reference

Allen, Arthur W. and Welch, Claude E.—Surgical Treatment—Abdominal Surgery: Bancroft and Wade, Lippincott—1947. Chapter 17, page 665.

JOURNAL OF THE
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CALCUTTA, OCTOBER 1, 1954

ENCEPHALITIS IN EPIDEMIC SPATE

Encephalitis is not entirely an unknown disease in India, though rarely reported. A sudden outbreak of this disease in epidemic form in Jamshedpur during last June and July sprang an unpleasant surprise among the local medical profession and the medical and health authorities. It also drew the attention of epidemiologists, research workers and the Government of India. Perhaps, within the knowledge of recent history, this outbreak is the only one of its kind recorded in this part of the country.

Physicians in Jamshedpur thought at first that children were the only victims, as the symptoms and signs of a typical infection were seen only amongst them and the fatalities were exclusively confined to the age group below 12 years except in one or two instances. It was later noted that a large number of adult persons had also been and were being admitted into the hospital with fever of undiagnosed origin, the temperature curve resembling the dengue type but causing no fatalities amongst them. Including the latter nearly 300 cases were supposed to have been admitted into the Jamshedpur Main Hospital within the period of 2 months.

The point of greater concern is its simultaneous or successive appearance in other parts of India, distantly situated. Thus, following Jamshedpur, similar cases were reported from Bilaspur in Madhya Pradesh and Monghyr in Bihar. Soon after the disease was reported from Patna, Allahabad, Lucknow, Kanpur, Hardoi, Bareilly, Sitapur and lately from Delhi. This gives an impression as if the epidemic has moved towards the west and affected a large number of districts in East and West U.P., the heaviest incidence occurring in July. In these places only the serious and fatal cases attracted the attention of the medical profession but many more cases must have been occurring which escaped their notice.

Not very long ago 'encephalitis' generally meant "encephalitis lethargica." Since then many varieties have been described, which occur either sporadically or in epidemic form. These may be due to some neurotropic viruses such as St. Louis, West Nile, Japanese B, Australian X and Russian type, to poisons and to the toxic or allergic effects of bacteria. It occasionally follows some common infectious fevers like mumps, measles, chickenpox, German measles and whooping cough. It also sometimes accompanies poliomyelitis, glandular fever and a kind of leptospirosis. Besides above there are perhaps other unknown aetiological factors causing encephalitic syndrome. The disease may be initially mistaken for cerebrospinal meningitis, cerebral malaria, influenza, etc. until other neurological signs appear. In fact, there is no satisfactory classification based on clinical patterns, as in the same epidemic, different clinical patterns caused by the same aetiological agent are observed, though rarely more than one aetiological agent may be simultaneously present. The present epidemic more or less resembles that of Japanese B or Australian X type.

Children are the particular victims though adults may also suffer without any serious consequence. The younger the children the higher is the fatality rate. The following is the history of a typical case as seen in Jamshedpur and other places:

The child is usually in good health before retiring to bed after the night meal. Four to five hours later he wakes up from sleep crying or screaming, shows signs of uneasiness, vomits or passes stools once or twice. He has a chill or shivering followed by high rise of temperature to 105°F or even higher (108°F has been recorded), congestion of eyes, convulsions, twitching or tremors, often talks incoherently or becomes delirious, all coming in succession. So he lapses into semi-conscious or unconscious state though twitchings and tremors may persist. Respiration becomes shallower and shallower until death supervenes by complete cessation of respiration. Neck rigidity, Kernig's sign exaggerated knee jerk are common; abdominal reflex may or may not be present. There is usually a high polymorphonuclear leucocytosis. In some cases severe hypoglycaemic conditions have been noted.

In adults the signs and symptoms are different and variable. An otherwise healthy person suddenly gets high temperature with headache, uneasiness with or without mental incoherence and exaggerated knee jerks. There is varying degree of neutrophilic leucocytosis between 10-25,000 per c.mm. The temperature usually abates within 24 hours but recurs again 2-4 days later, reaching the same peak or even higher and comes down by lysis during the next 3 or 4 days, leaving the person highly prostrated and weak needing prolonged convalescence.

Diagnosis is difficult even with the aid of a well-equipped laboratory. Among the signs and symptoms, the mode of onset, the depth of un-

consciousness and the presence of fits, twitchings or convulsions and shallowness of respiration are the immediate guide to diagnosis and assessment of the severity of the condition. A lumbar puncture, a differential count and an estimation of blood sugar usually help the diagnosis. In case of encephalitis the C.S.F. which may or may not be under pressure is usually clear with mononuclear pleocytosis and increase of protein. This picture will exclude meningitis except perhaps tuberculous and choriolymphocytic types which will, however, have other characteristics. Neither sulpha drugs nor the antibiotics have any effect on the disease, but parenternal glucose in patients showing severe hypoglycaemia is beneficial. Respiratory failure must be combated by an "iron lung" or other artificial means. For all these and proper nursing, hospitalization of patients is essential.

It is a matter of great epidemiological interest to know how the disease arose in so many places simultaneously or in quick succession. Since it was first seen and reported in Jamshedpur the question which may be ordinarily asked is whether the cases appearing in Bilaspur and Monghyr were in any way connected with this town and so also with the other affected towns where the disease subsequently appeared. Epidemiologically it is now known that these incidences need not be interconnected in any way as Andrewes[1] has recently found about the influenza outbreaks. However, it is also true that the origin and spread of infection in the Jamshedpur town itself has still remained a matter of speculation except that certain cases diagnosed as encephalitis were admitted into the hospital during recent years. It seems that man to man transmission, if at all, could not be epidemiologically established and some arthropod vector, mosquito or sandfly, was suspected but neither in human cases nor in any arthropod, any virus has so far been isolated by passage of blood or tissues of patients either through mice or through monkeys as carried out by the experts of the Poona Virus Laboratory. On the other hand, almost simultaneous appearance of cases in several towns, distantly situated, gives it a similarity to the mode of spread of influenza.

Another point of interest is its severity and malignancy for the infants and children of lower age groups and its innocuousness for the adult population. In fact, there is hardly any other disease which leads to fatal termination so quickly as 6 hours after the onset of symptoms in spite of all available treatment. The resistance of the adult population in such cases generally means clinical or subclinical infection with homologous or allied virus, in childhood. In other words, it would not be too far wrong to suppose that the infection has been in this country at least for some time past causing sporadic cases among children, and that it mostly went undiagnosed and leading to immunity in others. Now the epidemiological factors being favourable it is appearing in larger numbers than usual. In any case, it is our duty to find out the nature of virus which is responsible for the disease and the vectors transmitting it, for the purpose of organising proper and effective control measures. The latter has assumed an added importance because in the absence of any effective treatment, prevention and control are the only weapons left in our hands for combating the situation.

Unfortunately, one of the quicker methods of diagnosis, namely the post-mortem examination could not be performed in any fatal case. Since our people have not yet realized the importance of such an examination in the face of so many children losing their lives, it is incumbent on our Government to make this facility available to the physician through ordinance or emergency legislation for the benefit of our own people and the country. So long such facilities are not available, perhaps the only other means that can be undertaken at this stage is to collect sera from acute cases as well as convalescents (especially pair samples) and test them for mouse-protective or complement-fixing antibodies against known viruses. For this purpose advantage of the facilities for such tests which are now available in New York should be taken until these are made available in the Poona Virus Laboratory in India.

Virus diseases and especially neurotropic viruses seem to be on the increase in India. A few years ago we had an outbreak of poliomyelitis which is still going on, and now one of encephalitis. It would not be surprising if more forms and more cases of encephalitis are seen among infants and children. It is stated that the Poona Virus Laboratory has already discovered evidence of the presence of the West Nile, Russian and Japanese B viruses in India. Perhaps more frequent mixing of the people of the world or high increase of air traffic or the natural epidemiological secular trend, or a combination of them may be concerned with it. In any event, the situation demands certain action now and in this respect the medical authorities of the Jamshedpur Hospital deserve credit for bringing it to the notice of the public health workers and the Government quite early.

[1] Influenza : A Review on Current Research, W.H.O. Monograph series No. 20, 1954.

DUTIES AND TAXES ON MEDICAMENTS

Medicine is an essential requirement of life. In spite of our best efforts, diseases in the world will continue and medical care shall remain an unavoidable necessity of society.

The cost of medical care in recent years has gone up and is spiralling further up beyond the average purchasing power. In India, the poverty of the people is such that most are unable to provide even the primary commodities upon which maintenance of life depends, much less drugs and medicaments however essential.

The Central Government and the State Governments of our country are every year spending large sums of money for the prevention and cure of diseases as also for restoration of health. But only a small percentage of people are benefited by the health measures of the Government. The majority of the people have to pay for their own medical care. Costly medicines are mostly beyond their reach and they get heavily involved financially when they have to buy such medicaments. In this context the imposition of taxes and duties on medicine and valuable medical appliances appears most incongruous.

The Government which is so anxious for the health of the people should sacrifice this small revenue to give some relief to them. All medicaments manufactured locally or imported should be exempted from the operation of Sales Tax. Foreign drugs, particularly those that are usually termed as "Life Saving" and which are not manufactured in this country should also be exempted from import duties. Medical appliances which are essential for diagnoses and treatment and which are not locally manufactured, and raw materials which are required for the manufacture of drugs in this country should also be freed from import duties. Some of this loss in revenue may be made good by imposing heavier duties on such medicaments which are imported though they are being also manufactured in India. As we have said already, to derive revenue at the cost of the ailing people, on the part of a Government running an avowedly "Welfare State" is something we cannot reconcile ourselves to. We know, the removal of the taxes and duties on medicine will not appreciably lessen their cost, but from a humanitarian point of view these taxes and duties should go.

The budget estimates of the Central and State Governments will be finalised shortly. We shall be really glad if this question of taxes and duties on medicine is considered previous to the final preparation of the budget and these are lifted to give some relief to the suffering people.

OUR JOURNAL

Progress is inherent in life. Our Journal has steadily progressed during the last quarter of a century and has reached a stage when we feel, further expansion is necessary to make it more useful to the readers.

With this end in view, we have arranged to publish the Journal on the first and the sixteenth *i.e.*, twice each month. Our ultimate object is to convert this journal into a weekly publication. We would have been happier to make it a weekly journal immediately but caution forewarns us not to take a hasty step. So we prefer to proceed by stages. We know, step-by-step progress is not dramatic but is nevertheless sure and steady.

This we think is an appropriate occasion when we should re-examine the purpose of the Journal and either re-affirm the old aims or fix new ones. The major aim of this Journal as is well known, is to make available in its pages clinical material which would particularly benefit the general practitioner.

Ours is not an exclusive journal of research. It is a general or all-purpose journal belonging to the Association where most of the readers are general practitioners. One of the important functions of our Journal should therefore be, to present to a variety of readers, a varied content with particular stress on practical papers. With this object in view, we have introduced from this issue a new section,—The Refresher Course, in addition to the existing ones. Though primarily it is a general medical journal, we are always keen to include in it scientific original articles in which are presented the results of research and investigations carried out in this country. In any medical journal, papers of scientific investigations should find a prominent place, because otherwise it would defeat the purpose of the journal to educate the general practitioners in the uptodate knowledge of prevention of diseases and restoration of health, also to stimulate thought and talent amongst them.

It is indeed a happy sign that contributors to this Journal are ever increasing and we are receiving excellent articles of real value from different parts of the country. This Journal has built up a reputation which we believe will stand it in good stead in the future. We hope, the time is not far away when in line with the official organs of prominent medical associations of the world, we shall be able to convert this Journal into a weekly publication.

CURRENT MEDICAL LITERATURE

Vascular Spiders and Oesophageal Varices in Cirrhosis of the Liver

BRICK AND PALMER (*J.A.M.A.*, **155**: 8, 1954) write that in 150 cases of cirrhosis, vascular spiders (nevi araneosi) were found more frequently when oesophageal varices were present than when varices were absent. The mode of production of vascular spiders in cirrhosis is not known. Portal hypertension does not explain the presence of spiders, but it may be a contributory factor.

The vascular spider is characterized as consisting of a body or central point that may be elevated when large. Branching legs or radicles radiate and spread out parallel to the skin just below the surface. The bright red colour is due to the arterial blood, and the temperature of the region encompassed by the spider may be 1 to 3 degrees centigrade higher than the uninvolved adjacent skin. Filling is from the centre outward; this may be demonstrated by blanching the lesion by pressing on the centre and then releasing the pressure.

They are found usually on the face, neck, chest, and arms. Only rarely can they be found below the level of the diaphragm. In 41 patients with cirrhosis Bean found 793 spiders, only 8 of which were below the level of the umbilicus. Spiders may appear or disappear apparently spontaneously, almost overnight. While one lesion fades, a new one may appear or another one may become larger.

The finding of spiders in a patient should suggest not only cirrhosis but also oesophageal varices and should make mandatory oesophagoscopy to ascertain the presence or absence of varices for complete management of the disease.

Cat Scratch Disease

DANIEL AND MACMURRAY (*J.A.M.A.*, **154**: 1247, 1954) in reporting on the analysis of 160 cases of cat scratch disease from 27 States and 8 foreign countries observe that in its most classic form the disease follows a cat scratch or other skin injury, with the development in about one-half of the cases of a primary skin lesion that may assume a variety of forms. Regional lymphadenitis developed and proceeded to suppuration in 47 of the cases reported. Lymph node enlargement persisted for from two weeks to six months. Most patients had bad contact with cats. The commonest forms of the disease were those involving axillary, cervical, or inguinal nodes. Less often lymph nodes in unusual sites were involved, as under the edge of the pectoral or trapezius muscles, in the suprasternal notch, and in the upper midline of the neck. Rarely one eye was the site of inoculation, with conjunctivitis and homolateral enlargement of the preauricular node (Parinaud's oculoglandular syndrome). Low fever and mild systemic symptoms were frequent. Sometimes a rash appeared, which was usually maculopapular and transient. Erythema nodosum occurred in several patients. Encephalitis complicated the illness in a few of the more severely ill persons.

All of the patients reported on had a positive intradermal test result with cat scratch disease antigen. A few patients whose clinical manifestations suggested this disease had negative intradermal tests and were not included in this analysis. The granulomatous microscopic pattern in affected nodes was suggestive, but not diagnostic, of cat scratch disease. Studies of the material under review have as yet thrown no light on the aetiology.

Intestinal Tuberculosis

MITCHELL AND BRISTOL (*Am. J. M. Sci.*, **227**: 241, 1954) write that during the 25 years from 1924 to 1949, 346 (6·3 per cent) of 5,529 admissions with pulmonary tuberculosis examined routinely had radiographic findings indicative of intestinal tuberculosis.

The incidence of intestinal tuberculosis varied with the extent of the pulmonary disease and, at least in females, with the age of the patient.

The incidence of intestinal tuberculosis fell from about 10 to a little over one per cent of all admissions between 1924 and 1949.

The cumulative tuberculosis mortality of pulmonary tuberculosis complicated by intestinal tuberculosis before chemotherapy was 40 per cent at 20 years and varied with the extent of the pulmonary lesion.

Intestinal tuberculosis may occasionally coexist with pulmonary tuberculosis in the absence of roentgenographic evidence of cavity, positive sputum bacteriology, and gastrointestinal symptoms.

Lung Biopsies in Mitral Stenosis

GOVETTE AND OTHERS (*Am. Heart J.*, **47**: 645, 1954) in reporting on a pathologic study of lung biopsies from fifteen cases of well-established mitral stenosis made with the purpose of correlation of the alveolar and pulmonary vessel changes with the clinical and laboratory findings observe (a control group of ten autopsy cases without cardiac or pulmonary disease was also studied):

The changes in the alveolar walls consisted of capillary dilatation, thickening of the capillary basement membrane, increase in the interstitial tissue, pericapillary oedema, and a transition to cuboidal epithelium.

The lesions in the pulmonary vessels consisted of intimal thickening, medial hypertrophy and scarring with narrowed lumens.

Such changes were more commonly found in older patients with more advanced disease, in those with roentgenographic evidence of pulmonary fibrosis or haemosiderosis, electrocardiographic evidence of right ventricular hypertrophy, high pulmonary artery pressures, and increased pulmonary and pulmonary arteriolar resistance. Pulmonary vessel changes could not be consistently predicted by any clinical or laboratory finding.

Patients with marked pulmonary changes tend to derive less benefit from mitral valvulotomy, but there are noteworthy exceptions.

No single feature or group of features is completely reliable in determining the degree of pulmonary changes present prior to operation nor do the pulmonary changes

as determined by lung biopsy necessarily predict the degree of benefit to be obtained from valvulotomy.

Cardiac Involvement in Haemochromatosis

LEWIS (*Am. J. Med. Sci.*, **227** : 544, 1954) in dealing with cardiac involvement in haemochromatosis writes :

The mechanism of excess iron storage in the body is reviewed.

Three reasons for such excess iron stores have been advanced : endogenous because of increased intestinal absorption due to unknown causes; exogenous by way of multiple transfusions; and nutritional or dietary disturbances which may enhance iron absorption.

Clinical and pathological features of the whole-heart failure seen in haemochromatosis are discussed. Two cases are presented that represent haemosiderotic heart disease acquired by endogenous and exogenous mechanisms.

Simple irritative injury to cardiac muscle cells by haemosiderin deposits seems inadequate as an explanation for cardiac failure. Biochemical changes in important enzyme systems and the destruction of phosphate-containing protein substances in the sarcoplasm and nucleus by the excess iron may be a cause for the myocardial failure.

Treatment of established heart failure due to haemosiderosis is usually unfruitful. Repeated bleeding to remove excess iron stores may be a way to reduce the severity of the changes found in haemochromatosis.

Low Diastolic Pressure in Rheumatoid Arthritis

TURNER AND LANSBURY (*Am. J. Med. Sci.*, **227** : 503, 1954) write that blood pressure readings in 320 unselected cases of rheumatoid arthritis reveal an average diastolic hypotension of about 75 mm.Hg for all decades. This is so constant (95 per cent of cases) that it constitutes a clinical feature of the disease and may, therefore, be of value in the differential diagnosis of the arthritides.

Both rheumatoid arthritis and essential hypertension may be precipitated and exacerbated by emotional stress, although they are otherwise largely mutually exclusive diseases.

Blockade of efferent neural discharges by Apresoline, or hexamethonium, or both, in hypertensives causes a series of syndromes closely resembling rheumatoid arthritis, disseminated lupus erythematosus and possibly scleroderma.

The authors postulate that the precipitating factor in these diseases may therefore be a hypothalamic disturbance resulting in abnormal efferent neural discharges, and that in hypertensive cases the drug induced autonomic blockade may divert this energy into those pathways which result in the production of the collagen diseases instead of hypertension.

Neuropsychiatric Residuals Following Resuscitating from Cardiac Arrest

FREEMAN AND OTHERS (*J.A.M.A.*, **155** : 107, 1954) write that thoracotomy with cardiac massage for cardiac asystole is being performed with increasing frequency. Improvements in rescue technique and in postoperative care will account for an increasing number of survivors. Some of these will have sustained irreversible damage to higher nervous centres. In the series reported here, two of the patients had sustained variable degrees of head trauma before the anoxia resulting from cardiac arrest. In the third case the residual brain damage resulted from the anoxia alone. Loss of recent memory, inability to relearn, ataxias, emotional lability, and intellectual impairment with loss of integrative capacities were present 18 to 36 months after the event.

Hypoglycaemia and Myocardial Infarction

GANDEVIA (*M. J. Australia*, **1** : 33, 1954) from the study on the relationship between hypoglycaemia and cardiac pain and the incidence of their association in 50 consecutive cases of recent myocardial infarction proved at autopsy observed that six patients had had an antecedent hypoglycaemic reaction at approximately the time in which the infarct had appeared. This could be determined from the patient's history and the histological examination of the specimen. Five of the six patients had diabetes and had been receiving insulin for some years; an islet cell tumour of the pancreas was found in the other patient. The incidence of the association of the two diseases was also studied in a group of 55 diabetic patients in whom autopsy was performed. Only infarcts of less than three months' standing were accepted, and they were found in 14 cases. The rate of an antecedent hypoglycaemic reaction among the 55 patients was found to be significantly higher among those who died from other causes. The author reviewed the literature and states that he found sufficient evidence to indicate that hypoglycaemia may, by producing an increase in cardiac work, indirectly determine or aggravate myocardial infarction, angina pectoris, and sometimes cardiac neurosis. A protein-rich diet is suggested for patients whose angina pectoris is more easily produced, or less quickly relieved by rest, at times of the day when the blood sugar level is likely to be low. Special attention should be given to elderly diabetic patients, especially to those with evidence of decreased cardiac reserve, to prevent hypoglycaemic reactions. Administration of small doses of neostigmine (Prostigmine) to these patients may be useful.

Thromboembolic Complication from Cortisone

RUSSEK AND OTHERS (*Am. Heart J.*, **47** : 653, 1954) report on the observations in eighty-six patients with advanced cardiovascular and/or cerebrovascular disease who received large dosage of cortisone in a course of therapy generally extending over a period of three weeks. In these patients no thromboembolic phenomena or other vascular complications were encountered during the administration of the drug or following its withdrawal though an increased coagulability of the blood has been reported in the hyperadrenaline state induced by the use of A.C.T.H. This experience seems to indicate that the theoretical danger of thrombotic complications from the use of cortisone is not clinically significant and that underlying disease of the heart or

blood vessels need not preclude such therapy when proper supervision and simple precautions are instituted.

Untoward Gastrointestinal Manifestations Related to Cortisone and Corticotropin

SAUER AND OTHERS (*Proc. Staff Meet Mayo Clinic*, **28** : 641, 1953) present the case of 10 patients in whom serious untoward gastrointestinal manifestations appeared during or after administration of cortisone or corticotropin. Death occurred in one patient who had chronic ulcerative colitis and in whom perforation of the caecum and peritonitis developed. Perforation of the bowel and peritonitis occurred in two of four patients who had regional enteritis ; an enterocutaneous fistula was present in one of these as a result of the perforation. Perforation of an intra-abdominal abscess occurred in a third patient who had this disease. The fourth patient, who had extensive regional enteritis, also had ulcerative oesophagitis that either developed during or was aggravated by administration of corticotropin. Complications of peptic ulcer occurred in two patients who had extensive hypercortisonism. One of these patients had massive haemorrhage and ultimately died as the result of adrenal insufficiency after surgical removal of the ulcer. The second patient experienced reactivation of an ulcer and massive haemorrhage; subsequent resection was required. A gastric ulcer that was intractable to medical management appeared in a third patient who had hypercortisonism. Ulcerative rectal lesions developed in three patients; two of them had hypercortisonism and one of these also had a large intractable gastric ulcer. The third patient in this group had proctoscopic findings and clinical symptoms compatible with chronic ulcerative colitis that developed while he was receiving cortisone for treatment of rheumatoid arthritis. Although it is possible that gastrointestinal complications occur in patients receiving cortisone or corticotropin entirely by chance, the evidence from this study and from reports in the literature strongly suggests that administration of these hormones may be a causative factor.

Rectal Digitalization

MILLER AND OTTENHEIMER (*Am. Pract. Digest Treat.*, **5** : 103, 1954, Ref. *J.A.M.A.*, **155** : 214, 1954) write that prolonged oral administration of digitalis often leads to symptoms of gastric irritation, such as loss of appetite, nausea, vomiting, and heartburn, and to other correlated symptoms, such as dizziness, headache, green or yellow vision, tinnitus, and vertigo. Such toxic effects have been more frequent during recent years, since digitoxin has been widely used. Rectal administration avoids the local gastric irritation, it also circumvents the portal circulation. In chronic congestive heart failure with enlarged tender liver, ascites, or massive oedema, the rectal administration of digitalis may succeed when oral administration is ineffective. Through the anastomoses of the inferior and middle haemorrhoidal veins, blood from the rectum is carried directly to the inferior vena cava and right auricle without being trapped in the venous pools of the enlarged congestive liver. Another important indication for rectal therapy is rheumatic heart disease (mitral stenosis especially) complicated by pregnancy. If these patients show signs of heart failure, prolonged administration of digitalis is necessary but almost impossible, because of morning sickness and frequent vomiting. The rectal application is simple for the ambulatory patient, whereas the parenteral administration requires either hospitalization or nursing care. The authors had the opportunity to observe for many months ambulatory clinic patients as well as private practice patients, who were given digitalis only in the form of rectal suppositories. To illustrate that full digitalization is possible, the authors selected for presentation histories of 15 patients in whom severe heart disease was present and in whom the criteria of complete digitalization (such as full compensation, slowing of the heart rate, digitalis effect on the electrocardiogram, etc.), could be demonstrated. Most cardiac patients can be adequately treated with oral digitalis preparations. Rectal digitalis administration can be used over a long period of time without undue rectal irritation and should be used when the oral route is not feasible and parenteral administration would have to be continued over a long period.

Chlorpromazine in Neuropsychiatric Disorders

WINKELMAN (*J.A.M.A.*, **155** : 18, 1954) from an analysis of the results of the study made on 142 patients observes that chlorpromazine (10-[γ-diethylaminopropyl]-2-chlorophenothiazine hydrochloride) has a definite place in the treatment of neuropsychiatric patients, both by the general practitioner and by the psychiatrist. Chlorpromazine should not be considered merely a chemical restraint that has no real effect on the patient's illness; on the other hand, it cannot be used as a panacea for all psychiatric ills. Although it should never be given as a substitute for analytically oriented psychotherapy, it must be considered a true therapeutic agent with definite indications. The drug is especially remarkable in that it can reduce severe anxiety, diminish phobias and obsessions, reverse or modify a paranoid psychosis, quiet manic or extremely agitated patients, and change the hostile, agitated, senile patient into a quiet, easily managed patient.

In the nonhospitalized and the agitated senile patients, therapy was begun with an oral dose of 75 mg., 25 mg. with each meal. They were told that they might become drowsy during the first four to seven days of treatment, but that they should continue to take the drug since this effect would gradually diminish. The patients were reexamined weekly. At the end of the first week of treatment, the dosage was gradually increased, depending on the patient's response, until clinical improvement was obtained or excessive drowsiness occurred. If drowsiness interfered with the patient's normal activity, the dosage was decreased to 10 mg., three or four times daily. Patients received the drug for from 8 to 32 weeks and could be satisfactorily maintained on dosages of 30 to 150 mg. a day. Patients' response to the drug varied considerably. Some patients responded well to 30 to 50 mg. a day; others required 150 mg. Some patients given 50 mg. a day became drowsy to the extent that it interfered with their normal activity, while others did not

become drowsy when given 150 mg. a day. Hospitalized psychotic patients were given 25 mg. intramuscularly four times daily for the first two or three days and 50 mg. intramuscularly four times daily thereafter. The dosage was adjusted, increased or decreased, to maintain the patient in a resting or even a somnolent state.

Osteomyelitis of the Spine from Urinary Infections

MUSSEY (*Illinois, M. J.*, **105** : 253, 1954) writes that pyogenic osteomyelitis of the spine is rarely secondary to urinary tract infection, only eleven cases being collected from the literature, including the two cases reported herein.

Instrumentation or surgery of the lower urinary tract in males beyond the age of fortyfive years usually precedes the osteomyelitis.

The surgeon should be cognizant of this condition and should not delay treatment until roentgenologic proof is obtained.

The method of spread of the infection from the urinary tract to the vertebral column is probably by the vertebral system of veins described by Batson.

Pyloric Obstruction in Peptic Ulcer

ROTH AND DANIEL (*Ann. Ant. Med.*, **40** : 11, 1954) in reviewing the data on 83 patients with peptic ulcer and gastric retention observe : All were given a trial of medical therapy. Fortyfour responded initially, but, at or before follow-up, gastric retention had recurred in 16. The retention had usually cleared within a week of institution of medical therapy in the patients who did not have a recurrence, whereas a longer period had often been required in those that later had a recurrence. The patient's clinical history and laboratory findings often indicated whether he was likely to be relieved by medical therapy. The patients that came to surgery on their first or subsequent admissions and had organic obstruction, characteristically were older, had a longer history of ulcer, had more complications, had vomited for a longer time and more regularly had vomited larger quantities, and had often brought up retained food. Their laboratory evidence, retention of barium by x-ray and gastric residue on aspiration were also usually greater.

Fifty patients were operated upon for persistence or recurrence of their gastric retention. Thirty-eight were found to have definite narrowing in either the duodenum or the pylorus. Active ulcers were present in almost half of the cases in spite of the previous medical therapy. Obstruction often appeared to be due to the effect of an active ulcer in a duodenum or pylorus already narrowed by previous scarring.

Nutrition after Gastric Operations

ZOLLINGER AND ELLISON (*J.A.M.A.*, **154** : 811, 1954) give in the following lines the summary of their observations on the problem of nutrition after gastric surgery :

Preoperative weight and the ideal weight are essential data in planning gastric surgery for duodenal ulcer. Satisfactory nutrition can be anticipated in two-thirds of patients who are at or above their ideal weight at the time of surgery, regardless of the procedure employed. Unsatisfactory weight trends should be anticipated in the great majority of patients whose preoperative weight levels are below their ideal weight, and these trends are related to the procedure employed. Control of the acid factor by means other than radical resection should be considered. Data on the preoperative nutritional status as well as on the postoperative weight trends of the patients reported on would seem highly desirable in the evaluation of the effectiveness of any operation for duodenal ulcer.

Kidney Biopsy in Prone Positions

KARK AND MUEHRCKE (*Lancet*, **1** : 1047, 1954) write that kidney biopsies done with the patient in the prone position are safe and relatively painless. The technique is described in detail, and anybody with reasonable skill should be able to do a high percentage of successful biopsies with Franklin's modification of the Vim-Silverman needle.

Kidney biopsy is of great value and can either correct or confirm clinical diagnoses of renal disease, since by its use one can make exact pathological diagnoses. It is also useful in obtaining cultures of organisms from the kidney; in following the natural history of diseases involving the kidney; in assessing the effects of drugs on renal and cardiovascular disease; in studying renal cytology and cytochemistry; and in obtaining data which may clarify present concepts of the physiology and pathophysiology of the kidney.

Bilateral Adrenalectomy in Mammary Cancer

PYRAH AND SMIDDY (*Lancet*, **1** : 1041, 1954) write that 22 patients with advanced mammary carcinoma with metastases underwent bilateral adrenalectomy and bilateral oophorectomy. 1 died soon after the operation, and 8 have either died from cancer or have shown no improvement; 10 have improved and 5 of these have had a major remission.

The results confirm the work of Huggins and his coworkers that a favourable response sometimes follows bilateral adrenalectomy and bilateral oophorectomy.

Tourniquet Paralysis Syndrome

MOLDAVER (*A. M. A. Arch. Surg.*, **68** : 136, 1954, Ref. *J.A.M.A.*, **155** : 216, 1954) in reporting on the study of seven cases of complete paralysis resulting from the use of a tourniquet observes : Three were induced by rubber tube, two were the result of Esmarch bandages, and two were caused by the use of an inflated cuff. In tourniquet paralysis, there is a disturbance in the functions of the peripheral nerves that is apparently caused by the mechanical pressure of the tourniquet on the nerve and is not the result of ischaemia. There is a constellation of symptoms that justify the term syndrome. The

characteristics of this syndrome are as follows: Concerning motor function, there is paralysis with hypotonia or atonia, but no appreciable atrophy. Sensory examination shows a dissociation of the sensations, The fibres subserving touch, pressure, vibration, and position sense are affected, and those sensations are usually absent. Pain sensation is never lost. In most of the cases there is actual hyperalgesia, that is, the pain is felt with a low threshold. Heat and cold sensations are usually not affected or are slightly disturbed. There is no paresthesia or tingling after release of the tourniquet; this is indicative of a block of the tough fibres responsible for the tingling sensation. There is no Tinel's sign. There is no sign of neuroma at the site of the injury. Sympathetic fibres are now affected. Pilomotor reflex and skin resistance are normal. Colour of the limb is normal. Plethysmographic findings are normal. Temperature of the skin is normal. Electrical studies show that there is a block of conduction characterized by lack of response to stimulation of the motor nerve above the injury and a good response below the injury. There is no tingling sensation to stimulation of the sensory fibres distal to the site of the injury, but there is a tingling sensation when the nerve is stimulated proximal to the lesion. The electrical stimulation can localise the level of the lesion. When the syndrome of tourniquet paralysis is complete, the duration of the impairment of motor function and sensation can be as long as three months or even longer.

Irradiation Therapy in Hodgkin's Disease

NICE AND STENSTROM (*Radiology*, **62**: 641, 1954) give in the following lines the summary of their observations on the irradiation therapy of Hodgkin's disease:

A series of 208 patients with proved Hodgkin's disease showed a five-year survival rate of 25 per cent; for 167 patients followed ten years or longer, the ten-year survival rate is 11 per cent.

Clinical staging is the most accurate aid in prognosis and is necessary in comparing series from various medical centres. For 20 patients in Stage I, the five-year survival rate is 85 per cent; for 13 of these, followed ten years or longer, the ten-year survival is 77 per cent.

In Stage II, there is a 90 per cent survival for 20 patients followed five years, and a 35 per cent survival for 17 patients followed ten years. Thus, the difference between Stages I and II is shown in the ten-year period.

In the much larger group, Stage III, representing those patients with disseminated disease, the five-and ten-year survival rates are 10 and 8 per cent, respectively.

In Stage I, the treatment of choice is either intensive irradiation or, possibly, surgical excision followed immediately by intensive irradiation. In Stage II, intensive irradiation is the procedure of choice. In Stage III, palliative irradiation to reduce tumour masses or relieve symptoms is indicated. It is in the latter group that the nitrogen mustards and triethylene melamine may serve as useful adjuncts.

Benoxinate for Rapid Corneal Anaesthesia

SCHILEGEL AND SWAN (*A. M. A. Arch. Ophthal.*, **51**: 663, 1954) write:

Good penetrability of the epithelium, as well as anaesthetic potency, is a prerequisite to topical effectiveness of the cornea and conjunctiva of a local anaesthetic drug; however, to be clinically useful, such a drug must have other favourable properties. It must be nontoxic and well tolerated in concentrations which induce effective anaesthesia; also, it must form stable aqueous solutions which tolerate boiling or sterilization. Some antibacterial effects are desirable so that sterility is maintained reasonably well. A drug is most useful in everyday ophthalmologic practice if it rapidly induces surface anaesthesia of short duration unaccompanied by other pharmacologic effects on the eye, such as pupillary changes.

Benoxinate (Dorsacaine), a new benzoic acid ester developed in Switzerland was found to meet the above criteria. Clinical studies indicate that 0·4 per cent aqueous solutions are comparable in anaesthetic activity to 0·5 per cent aqueous solutions of tetracaine, but they are less surface-active and, therefore, less irritating and less apt to induce epithelial changes. The hydrochloride salt forms stable aqueous solutions which tolerate boiling and have some antibacterial effects.

Tissue analyses reveal that, in comparison with procaine, benoxinate applied topically rapidly concentrates in the corneal epithelium. This probably accounts for the much greater topical effectiveness of benoxinate. No differences in the distribution of benoxinate and procaine in the anterior segment were found after injection under the conjunctival epithelium, but much higher concentrations of both drugs were present in the iris and cornea than in the aqueous. This suggests that aqueous assays alone are not reliable indices of the penetration of drugs into the intraocular tissues.

Sulphonamides and Antibiotic Drugs in Trachoma

AGARWAL AND GUPTA (*Brit. J. Ophthal.*, **38**: 119, 1954) give in the following lines the summary of their observations on treatment of 250 cases of trachoma with sulphonamides and antibiotic drugs:

The study was controlled by the demonstration of inclusion bodies in conjunctival scrapings at intervals of 3 weeks.

The efficacy of aureomycin, terramycin, chloramphenicol, and sulphonamides in the treatment of secondary infection was confirmed.

It was found that terramycin, chloramphenicol, aureomycin, and the sulphonamides were all effective to a lesser or greater extent in the treatment of trachoma.

It is suggested that the sulphonamides are the most, and terramycin the least efficacious, in the treatment of trachoma.

A combined local and oral therapy is recommended.

The analysis of the results is given below in a table :

Drugs	Cases treated	Disappearance of: Secondary infection	Pannus 3 wks.	Pannus 6 wks.	Inclusion bodies 3 wks	Inclusion bodies 6 wks.	Total cases cured
Terramycin	50	Within 48 hours in all cases	8	6	6	6	12
Chloramphenicol	50		10	15	4	12	16
Aureomycin	50		12	13	10	10	20
Sulphonamides	50		15	22	14	21	35

Chloramphenicol I. M. in Trachoma

CHASTAIN AND NEWLIN (*Rocky Mountain M. J.*, **51** : 191, 1954) write that trachoma should be considered in the differential diagnosis of all ocular infections occurring in the Rocky Mountain area, regardless of race, age, sex or occupation.

A total of twenty-five patients having late Stage 2 or Stage 3 trachoma were successfully treated with daily intramuscular injections of one gram of chloramphenicol. There was no additional local medication of any type. Patients treated with chloramphenicol parenteral suspension were inactivated in an average of nine days. There were no significant blood or urinary changes, also no allergic reactions. There was no evidence of local reaction at site of injection.

Twenty-six patients received a combination of sulphadiazine orally and sodium sulphacetamide ophthalmic ointment, 10 per cent, locally. Twenty-two patients (84·6 per cent) responded favourably to sulpha therapy. Two patients who failed to respond to the sulphadiazine-sodium sulphacetamide combination, one patient who relapsed following treatment with sulpha, and one patient who was allergic to the drug all responded to chloramphenicol injections.

Patients treated with chloramphenicol injections should be continued on this therapy until the pannus has lost its injection and appears moderately grey in colour.

The authors feel that many more trachoma patients must be treated and observed over longer periods of time before a complete evaluation of intramuscular chloramphenicol can be made.

Haemolytic Disease of the Newborn

STRATTON AND RENTON (*Brit. M. J.*, **1** : 962, 1954) in reporting a case of haemolytic disease of the newborn due to a new Rh antibody, anti-C^x observe :

Anti-C^x antibody gives very few positive results when tested with random blood samples from the English population. Out of 3,931 random samples tested, four positive results were obtained.

The C^x antigen is considered to be an allele of Rh at the C-c locus. Its inheritance has been demonstrated.

The desirability of including direct tests between the husband's cells and the maternal serum in suspected cases of haemolytic disease, as well as the need for extensive investigations on antibodies thought to be reacting with family blood groups, is discussed.

CURRENT TOPIC

THE FUNCTION OF A GENERAL MEDICAL JOURNAL*

JOSEPH GARLAND, M.D.,

Editor, New England Journal of Medicine.

The majority of the 8,000 or 9,000 journals currently published in the world of medical letters may be divided roughly into three groups of ill-defined boundaries and overlapping functions. These groups are composed of the purely (or nearly purely) scientific journals of research, the specialty practice journals, a rapidly expanding group, and the general or all-purpose journals. Publications in all three divisions may be the nurslings of societies or associations, whether special or general, and may derive much or all of their nutrition from the maternal fount.

For the purpose of opening as widely as possible the present discussion of the function or functions of the general journal, a definition of such a publication, even if only provisional may be useful. With deliberate oversimplification it may be defined as a journal presenting to a variety of readers a varied content.

It aspires to keep them informed of progress in the scientific and clinical aspects of preventive and therapeutic medicine and of public health. It serves a newspaper function in presenting and analyzing information on medical affairs of current interest, including economic, social and political problems. If it is the official publication of a society, large or small, of mixed interests, such as one whose membership is determined by geopolitical considerations, it has the function of reporting to its members matters pertaining to the activities of that society.

These functions may vary widely in their relation to one another; some journals are mere bulletins, doing little more than to discharge their obligations to their societies; the majority publish papers that have been presented at society meetings as well as similar material voluntarily submitted or solicited; a few may offer to their readers in the course of a year many papers of intrinsic value, representing real contributions to medical knowledge. This is done in addition to their functions as newspapers and as analysts and catalysts of medical, social and economic relations. To decide what is most important and where the balance should lie is a problem that must be solved for each journal on the merits of the individual case.

From the content of a leading article published in the *British Medical Journal*[1] last February entitled "A Journal and Its Readers", one would know, even if it were not otherwise obvious, that the sagacious editor

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* Read before the Fourth Annual Meeting of the Medical Editors of the World, The Hague, Netherlands, September 7, 1953 and published in the World Medical Journal, Vol. I, No. 3, May 1954.

[1] Leading Article. A journal and its readers. *Brit. M.J.*, **1** : 406, 1953.

of that admirable and widely travelled publication is chronically alert to the matter of defining and discharging its functions. It may be that like matters have brought many a sleepless night—figuratively only, I hope—to the editors of the other journals in this category.

It seems not unnatural, therefore, that the amateur journalists directing the destinies of New England's own provincial if perhaps unique medical publication should be at least aware of this threat to their nocturnal tranquillity. I assume that I was chosen to present the subject because we have in the United States in the 39 publications representing 45 of our States, the District of Columbia and Alaska similar questions to answer; because the *New England Journal of Medicine* is itself one of the flock of 39, possibly masquerading in wolf's clothing, and because I, like the other editors, having spent most of my active life in practice, have had to learn my journalism by trial and error and can perhaps speak for them. My advantage is that I am able now to devote my full time to this new and engaging pastime.

This question of function, which determines content and is determined by it, was raised in the present instance by the editor of *Science*[2] in an article published last year under the title "The Content of Science". The *New England Journal*[3] thus inspired, made a brief comment on the general subject, after which the *British Medical Journal* gave it the aforementioned authoritative treatment.

The situation of our *New England Journal of Medicine*, with which I am intermittently familiar, is unique in that the publication was an independent local weekly for the better part of a century before becoming affiliated with the Massachusetts Medical Society nearly forty years ago. A growing circulation that now exceeds the Society membership by some 20,000 independent subscribers makes the editor conscious, at times, of a potentiality similar to that of a child playing with matches.

The content of the *Journal* is in general orthodox. The section of original articles, most of which are unsolicited, constitutes the most prominent although no longer the only department in which scientific clinical and otherwise instructive papers may appear. For the editors maintain that the general medical journal to fulfil its most vital function must also be in part a scientific journal in which the independent investigator, after his work has passed a careful scrutiny, may ethically proclaim its results.

For a number of years the *Journal* has carried as a regular feature a series of reports on medical progress. These are almost entirely solicited and are in the main authoritative critical analyses of a given subject rather than merely reviews of the literature. That, at least, is the concept that we encourage the writers on our varied and changing list to accept, although it seems almost impossible to disabuse many of them of the paradoxical belief that their kite will not fly without a bibliographic tail long enough to hold it to earth.

Some of the subjects chosen are of general and recurring interests, if somewhat pedestrian; others are such Homeric items as ballistocardiography, aminoaciduria and the ion exchange resins. These reports seem to be of general interest, perhaps especially to our student readers, of whom between 4,500 and 5,000 are regularly found as subscribers. Each year we have also a prize essay contest for fourth year students, consisting of the report and discussion of a clinical case that the student has studied as an academic assignment. Literary merit is one of the criteria on which the work is judged, and the winning essay is published.

The Case Records of the Massachusetts General Hospital, established by Dr. Richard C. Cabot in 1895 as a teaching exercise, have appeared each week in the *Journal* since 1923 and have been another popular feature. The virtue of these clinicopathological conferences is in the care taken in their preparation, which is great, and on the honesty with which the cases are discussed. The case system of teaching, as old as the School of Cos, has been brought to a high point of usefulness by such exercises. Gregg[4] of the Rockefeller Foundation said, in referring to them, that ". . . . . the clinicopathological conference is the wonder of many of our foreign visitors, who see in it a candour and fearlessness altogether to the credit of American medicine."

Not long ago we restored to the *Journal* an ancient department that apparently appealed to its readers of a century ago under the sprightly heading "Medical Intelligence". The present editors have given to "Medical Intelligence" all the flexibility of content of a back hall closet. Here may be found—supplementing the section of original articles—brief case reports, clinical notes, descriptions of new inventions, terse preliminary reports of original investigation, and in addition interesting anecdotes, historical allusions, a monthly London letter of general rather than clinical interest, and a venture that has seemed to find favour under the title "Doctors Afield". This venture consists of short biographical sketches of physicians who have found fame in other fields than medicine. And finally, as a sort of artifact, any play on words being unintentional, we publish from time to time reproductions of the works of members of the Massachusetts Physicians Art Society. Not to be confused with the old masters, many of these are nevertheless of considerable merit.

The remainder of the *Journal* consists of its newspaper functions, including the affairs of our Massachusetts Medical Society, the editorials, the correspondence and the various miscellaneous material so necessary to make the pages come out even. This newspaper section, fortunately or otherwise, is a relatively brief affair, compared with the pages necessary to fulfil the obligations of the journals that represent national associations.

Who are a journal's readers and what do they select for reading matter? An attempt was made last winter to find the answer to these questions as they related to

[2] MEYERHOFF, H. A.—Content of science. *Science*, **115**: 3 1952.

[3] Editorial—A journal and its readers. *New Eng. J. Med.*, **247**: 577, 1952.

[4] GREGG, A.—Broader view of post mortem examination. *Ann. Int. Med.*, **12**: 249-252, 1938.

our own publication. A simple return postal card questionnaire was sent to 18,800 unselected subscribers, or something over two-thirds of the total list, asking what they liked best about the *Journal*, what suggestions they had for improvements in its content, and in what type of work they were engaged. Over 8,300 replies were received—a return of about 44·5 per cent. The choices were expressed as follows: medical progress 2,789 or 33·3 per cent of those replying; original articles 2,738 or 32·7 per cent; case reports 2,237, or 26·7 per cent; and editorials 609, or 7·3 per cent.

Frequently recurring suggestions were that more papers be included on such nonclinical subjects as medical economics, legislation and public relations; that more short, textbook-style reports be published for the general practitioner and that symposia on special fields be occasionally arranged.

The occupations of subscribers proved interesting, for they comprised about every form of endeavour in which physicians engage. Internal medicine, including dermatology and syphilology, led the list with 2,352 devoted followers, or 27 per cent; surgery, with its various divisions, came next with 1,393, or approximately 23 per cent, and general practice third with 1,751, or 21 per cent. It may be suspected that some of the internists and surgeons are general practitioners as well, with a flair for the more pretentious classification.

Paediatrics claimed 319 of this group of subscribers selecting at random psychiatry and neurology 217, radiology 210, pathology 198, hospital administration 87, anaesthesiology 86, and so forth. These figures, somewhat dreary, as figures are apt to be, apparently indicate a catholicity of tastes and of occupations among the readers of a general medical journal. This we believe is as it should be, agreeing with Pope, at least in this instance, that

> *And spite of pride, in erring reason's spite,*
> *One truth is clear, Whatever is, is right.*

I am embarrassed at having devoted so much time to the content of our own journal and the classification of its readers. It has been my main concern for six years, however, and anything that I may have to offer must be drawn from my own experience.

The results of our questionnaire interested me especially in view of some slight pressure exerted occasionally by volunteer advisers (themselves not necessarily practitioners). This has been to the effect that since most of our readers are general practitioners (an assumption refuted by our questionnaire) the *Journal* should publish more practical papers for them, the inference drawn being that it should be brought down to their supposed level. In this respect, as in many others, we agree with the editor of the *British Medical Journal* that to consider a general journal as being published primarily for the general practitioners, with the implication that he must be written down to, is defeating the very purpose of all the present efforts to restore him to his rightful position as full partner in the great enterprise of preventing disease and restoring health.

Rather than being spoon fed the general practitioner has his own contributions to make to the advancement of medical knowledge. For an exposition of this thesis I need only refer to Platt's[1] address on "Opportunities for Research in General Practice", delivered before the Section of General Practice of the Manchester Medical Society and published in the *British Medical Journal* last March. It is the opportunity of the practitioner, like the master of the vessel lost in the great outflow of the Amazon, to let down his buckets where he is and tap the fresh sources that are about him.

The readers of our journals are legion. They represent no sect or group or caste, high or low. They are presumed to be interested in the advances that medicine is making in every department, that they may advance with it. How shall the material most useful to them be selected from among the original papers that are voluntarily submitted to an editorial board, or may at times be solicited?

The *British Medical Journal* gives an inclusive answer to this question by quoting the fundamental function of the British Medical Association, which is "to promote the medical and allied sciences". Such a statement suggests a fact that we cannot change if we would: that constructive medical literature must follow the channels in which the streams of medical progress seem destined at the time to flow. Medicine has become increasingly a science, and while the art of medicine has become increasingly a science, and while the art of medicine needs more than ever to be cultivated, to ignore its science is to seek out the backwaters and avoid the main current. In these pools of intellectual indolence pleasant anchorages may be found among the lotos-eaters, where

> *—In the stream the long-leaved flowers weep,*
> *And from the craggy ledge the poppy hangs in sleep.*

but it will be at the cost, for the individual, of abandoning the company of those who are trying to find better ways of serving mankind.

As the *British Medical Journal* stated, in the leading article that was so largely responsible for this precipitation of words, if not of ideas, "To those who find the substance of some original articles hard to digest, we can but offer apologies on behalf of modern medicine, the hard taskmaster of us all and in the last resort provider of the matter which fills these pages."

Let us agree that the main purpose of a general medical journal aside from its purely utilitarian newspaper function is to disseminate knowledge and to contribute to it. This is the prime object of its original articles and they must follow the advancing line. This means tables, charts, equations and statistics—for this is the order of the day—as mercifully brief and as lucid as their authors can make them.

We are in an age of therapensis, and, because extraordinary advances are being made in pharmacology, much of research is being commercially underwritten. This, too, is well, but certain delicate nuances occasionally arise, for the manufacturers have also their obligations to their stock-holders.

Material advances for inclusion in our all-purpose journals continue to take place in the study of disease,

[1] PLATT, R.—Opportunities for research in general practice *Brit. M.J.*, **1**: 577-580, 1953.

also, and many hitherto unexplored byways are to be found by those who search for them. As Bradford Hill[1] has said of the two important methods of research—observation and experiment—observation is far from sterile if critically analyzed—if it is permeated with the experimental spirit. The study of the effects of rubella in pregnancy is a classic example of modern observation and the application to it of the statistical method. We have come to believe that Paré was perhaps too far ahead of his time when he wrote in 1575 that "posterity will not be able to surpass us (be it said without malice or offence) save by some additions, such as are easily made to things already discovered."

There is still place in our journals for brief reports of unusual or especially interesting cases, particularly if some lesson can be drawn that contributes to the general fund of knowledge; textbook papers despite the insistence of certain readers, should be permissible only on occasion—having been delivered as addresses, for example—and even then, unless political pressures are extreme, they must serve the purpose of sifting and arranging new materials. For the rehashing of even good beef almost inevitably results in more hash. The review articles or report of progress is of value, if critically presented, and social, economic and political subjects, insofar as they concern medicine, merit authoritative treatment, since the greatest obligation of the medical profession at all times is to promote the widest distribution of the best possible medical care. And here I should like to insert a plea in favour of the medical essay. This form of literature, characterized as the "spice in the dish and the leavening in the loaf," presenting matter of universal interest in terms understandable to all, constitutes some of the most agreeable writing that we are privileged from time to time to publish.

Finally, it is a function of all medical literature to present its messages literately and clearly. No reasonable care in the selection and arrangement of the words and the sentences that are to be vehicles of the meaning should be neglected. The first and second drafts at least of any article or editorial destined to rescue posterity by appearing in the pages of our journals should be written with a lead pencil that has an eraser as its silent partner. Then, if legible, it may be turned into typescript and laid reverently away in a desk drawer to ripen.

In summary, there is fortunately no absolute answer to what a journal's content should be or what functions it should discharge, for absolute answers sometimes have an aura of finality. Again, I would agree with the *British Medical Journal* and recommend for each of us its own credo, stated as follows:

> It is not a journal for general practitioners or consultants, or public health officers, or laboratory workers. It is a journal which aims at representing the best of British medicine in order to promote the medical and allied sciences. It tries to provide each week something for everybody not everything for somebody.

The purpose of the medical reader, it may be hoped, is to broaden his view, not merely to find a simplified set of diagnostic and therapeutic guides for earning his bread and butter. The specialist reads to learn about other specialties and about medical progress in general, the general practitioner to gain some familiarity with the advances that medicine is making all along the line. Each must have some curiosity if he would avoid drying up like a pea in the pod; each should concern himself with the social, economic, political and cultural aspects of his profession, as well as its art and its sciences.

The function of our journals is to inform on matters of current interest, to instruct in the ever changing lore of medicine, to stimulate interest and invite thought on many subjects. The function of the editors in striving to accomplish these objectives is to secure material that will mark the path of progress, that will provide variety and maintain balance.

NOTES AND NEWS

Epidemic Virus Encephalitis in Jamshedpur

The appearance in an epidemic form of a large number of cases of encephalitis in Jamshedpur, Bihar, in June-July 1954 has brought into close co-operation the local medical talents, the workers of the Virus Research Centre, Poona, and of the All-India Institute of Hygiene and School of Tropical Medicine, Calcutta. Steady work is being carried on to find out the causative organism, to identify the transmitting insect, to determine the reservoir of infection and to chalk out the control measures. In the preliminary report at hand the disease is found in a number of forms mostly mild but fatal in a small number of cases and these only in children. The malady is not new this year nor confined to Jamshedpur; the incriminating germ is presumably a virus and the infection is probably transmitted by an arthropod vector.

Malnutrition in a World of Food Surplus

World food production has continued to rise faster than the increase in population, according to the annual report on "The State of Food and Agriculture" issued by the F.A.O.

The report, however, points out that this information must be seen against a background of surpluses arising in some regions and continued shortages and widespread malnutritions in others.

World agricultural production is likely to be maintained in 1954-55 and it may show some further increase.

Crop restrictions and somewhat less favourable weather may limit the production of cereals, sugar and cotton. No marked recovery is expected in the production of jute and hard fibres, and the output of rubber may continue to decline slowly. On the other hand, a continuing expansion of livestock production is probable, and increased supplies of oilseeds, coffee and tea and tobacco are expected.

The report says the first Five Year Plan in India has made considerable headway and, with favourable weather,

[1] HILL A. B.—Observation and experiment. *New Eng. J. Med.*, **248**: 995-1001, 1953.

the main agricultural production targets seem likely to be reached or exceeded. Substantial progress is also reported in China.

In most other Far Eastern countries agricultural progress appears to have been slower, though progress is being made in extending the paddy area in Burma, Malaya and Ceylon and in raising rice yield in Indonesia and the Philippines.

In view of the increased export prices of tea, coffee, jute and cotton and some revival of export demand for rubber, the terms of trade of Far Eastern countries are likely to show an improvement in 1954-55, the report says.

The acute phase of the postwar food shortage in the region, says the report, has now come to an end and in 1953-54, with a record harvest in India, the total production of foodgrains, excluding China, may be nine million tons (about 9%) above the pre-war level. Net imports of cereals, which continued to be high in 1953 due to short crops in Pakistan and Japan, will show a marked decline in 1954.

Lower international prices for cereals are contributing to the economic difficulties in Burma and Thailand, whose revenues are drawn largely from cereal exports. Surpluses of rice accumulated in these countries in late 1953, but exports are now moving freely. With increased production in importing countries, however, rice surpluses may reappear in late 1954 if current price relationships between rice and competing cereals persist.

The main problem in the region, says the report, is still to raise the very low food consumption levels over most of the area. There has been a noticeable improvement in Japan since the war, but for the region as a whole per capita supplies show little or no improvement over the nutritionally inadequate pre-war level. As most countries in the region are concerned to increase their resources to the greatest extent for general economic development, no rapid improvement in consumption levels can be expected.

While the surpluses already mentioned exist principally in North America and are chiefly concerned with grain, the rise in total agricultural production is greatest in Western Europe and the Near East, with smaller gains in the Far East and Oceania.

Sir Charles Hastings Essay Competition

The British Medical Association invites essays from any member of the BMA in India engaged in general practice for the above competition. The following are the regulations governing the award :

The work submitted must include personal observation and experiences collected by the candidate in general practice, and a high order of excellence will be required. If no essay entered is of sufficient merit no award will be made. Candidates in their entries should confine their attention to their own observations in practice rather than to comments on previously published work on the subject, though reference to current literature should not be omitted when it bears directly on their results, their interpretations and their conclusions.

Essays, or whatever form the candidate desires his work to take, must be sent to the Secretary, British Medical Association, B.M.A. House, Tavistock Square, London, W.C. 1, not later than 31st December, 1954.

Prizewinner in any year is eligible for an award of either of the prizes mentioned below in any subsequent year. A study or essay that has been published in the medical press or elsewhere will not be considered eligible for a prize, and a contribution offered in one year cannot be accepted in any subsequent year unless it includes evidence of further work.

Preliminary notice of entry for this competition is required, on a form of application to be obtained from the Secretary.

Each essay, which should be unsigned, must be typewritten or printed on one side of the paper only and accompanied by a note of the candidate's name and address.

No definite limits are laid down as to the length of essays, but the Council anticipates that for this competition essays should consist of between 3,000 and 10,000 words.

The Sir Charles Hastings Clinical Prize, consisting of a certificate and £75, will be awarded for the best essay and the Charles Oliver Hawthorne Clinical Prize, consisting of a certificate and £50, will be awarded for the second best essay submitted.

Unregistered Medical Practitioners

The Executive Committee of the Central Health Council at its first meeting on 19-8-54 considered draft legislation prohibiting practice of medicine by unregistered medical practitioners.

The meeting was presided over by the Union Health Minister Rajkumari Amrit Kaur.

The Committee decided that the draft legislation, with certain amendments should be circulated to the States and the Central Health Council should consider the matter in the light of the comments received.

There are already existing provisions covering registration of qualified allopathic practitioners and several States have boards which register personnel who receive recognised training in Ayurvedic, Unani and Homoeopathic courses. The draft legislation also provides for the registration of practitioners who have been working in the medical fields for a number of years.

The Executive Committee also considered the competence of practitioners of Ayurvedic, Unani and Homoeopathic systems to prescribe toxic drugs and measures to be taken to expedite research in Ayurveda.

Regarding research in Ayurveda, the Executive Committee felt that it was not feasible for every medical institution to take up research in Ayurveda or to establish a Central Co-ordinating Authority. Proposals have, it is learnt, already come in from State Governments who were asked to submit schemes for the promotion of research in Ayurveda. These proposals will be examined by a Special Committee with which eminent Ayurvedic, Unani and Homoeopathic practitioners will be associated.

International College of Surgeons

A Conference of the Indian Section of the International College of Surgeons, which was founded in 1935 at Geneva with its Central Office at Chicago, will assemble at the Taj Mahal Hotel at Bombay from 12-15 November 1954, when addresses will be delivered by a party of distinguished American surgeons who are coming there on a special mission. This party will be led by Dr. Max Thorek, the Founder and Secretary General of the College.

The Indian Section of the College has its office at Bombay at the K. R. M. Hospital and its President is Dr. R. N Cooper. The Secretary is Dr. V. P. Mehta of the same hospital. Information regarding rules of admission can be had of the Secretary, K. R. M. Hospital. Inquiries may also be addressed to Dr. K. G. Pandalai, 1, Cunningham Crescent, Bangalore 1.

BCG and Vole Vaccination

The National Association for the Prevention of Tuberculosis has published a new handbook, giving information and advice on BCG and vole vaccination.

Practical instructions for tuberculin testing by a variety of methods and instructions on the technique of intracutaneous vaccination, the multiple-puncture method, scarification and oral vaccination, also complications of vaccination and the organisation of vaccination procedure, have been given in details.

All-India Chemists' and Druggists' Federation

Inaugurating the tenth annual session of the All-India Chemists' and Druggists' Federation in Calcutta on 21-8-54, Dr. A. D. Mukharji, Minister of State for Health and Medicine, West Bengal, said that with a view to amending the existing laws dealing with the drug trade a Central Bill would be introduced in Parliament in its ensuing session. He also said that it had been decided to so amend the present Act that dealers in spurious drugs could be brought to book and that the offence would be a cognizable one. He advised the dealers not to import drugs which did not have the seal of approval of the Drug Research Laboratory. He hoped the Federation would help the State in completely eradicating the menace. He thought that those responsible for this trade in spurious drugs should be regarded as sharks in human society.

It had been found that many among the traders had developed unusual greed to earn money at the cost of others. Again, chemists and druggists shops were cropping up here and there like mushrooms much to the detriment of the trade. This craze for money-making should go and the druggists should place service and sacrifice before self.

Dr. Mukharji told the gathering that the sales tax was likely to be levied at the sources instead of each and every buyer.

In his presidential speech Sri Tej Krishna Rastogi said that those who dealt in spurious drugs and took resort to unethical practices should be dealt with seriously. In regard to the spurious and under-standard drugs he said that from day-to-day experience they knew that it was mostly the common patent medicines which were in short supply, became the exploiting ground for the unscrupulous. He appealed to medical men to abstain from prescribing such common patent medicines which were in short supply and whose substitutes were available in plenty.

Sri Rastogi suggested that his brothers in trade should insist on fair price level and should not cut down the margin of profit which, in his opinion, for a retailer should be 25% and for a wholesaler 12½%.

The chairman of the reception committee Sri H. Bhattacharjee, in his welcome address spoke on some problems hampering the trade and prejudicing the interest of the public. He said that indiscriminate opening of too many pharmacies had created a problem resulting in unhealthy competition. Disparity of rates of excise duty on Indian spirituous medicinal preparations and methods of imposition and realisation of sales tax between States were the other complex problems affecting the flow of goods from one State to another.

Resolutions were passed on the abolition of Sales Tax on medicaments, regularisation of Excise Duties in all States uniformly, restriction of application of the Drugs Act and Rules to only the sale and manufacture of spurious drugs and some other important questions.

Office bearers for the next year were elected with Sri H. Bhattacharjya as President, Sri P. U. Upadhyaya, Sri S. L. Dadha and Sri S. L. Nayyar as Vice-Presidents, Sri S. K. Mukherjee as General Secretary, Sri C. Lakhmichand Mehta as Jt. Secretary and Sri G. H. Kamani as Treasurer.

Medical Meetings Abroad

United Kingdom:

A general meeting of the British Dietetic Association will be held on 9 October 1954 in London. Particulars will be available from the British Dietetic Association, 251 Brompton Road, London, S.W. 3.

A meeting of the Biochemical Society will be held in London on 15-16 October 1954. For detailed information, the Professor of Biochemistry, London Hospital Medical School, London E 1, may be contacted.

The annual meeting of the British Orthopaedic Association will be held on 21-23 October 1954, in London. Details are available from the Association, 45 Lincoln's Inn Fields, London W.C. 2.

The annual meeting of the British Society of Gastroenterology will be held in London on 5-6 November 1954. Particulars from Mr. Hermon Taylor, 14 Upper Harley Street, London W. 1.

A meeting of the Society of Thoracic Surgeons will be held in London on 12-13 November 1954. Particulars from Mr. J. Leigh Collis, 15 Highfield Road, Edgbaston, Birmingham.

Nutrition Society Symposium on the National Food Survey of Great Britain has been arranged at West Minister Hospital Medical School in London on 20 November 1954.

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Brazil :

The First International Congress of Odontology will be held on 25-30 October 1954 at Sao Paulo, Brazil. Particulars from Dr. Virgelio P. Delgado Filho, Unaio Odontologica Brasiliera, 126 Sobreloja, Caixa Postal 839, Sao Paulo.

The First International Congress of Medicinal Plants and related subjects will be held on 1-7 December 1954 at Sao Paulo.

The Third Pan American Pharmaceutical and Biochemical Congress will be held at Sao Paulo on 1-8 December 1954.

Chile :

The 14th Pan American Sanitary Conference will be held at Santiago, Chile in October 1954. Details from Pan American Sanitary Bureau, Washington 6, D.C.

France :

The 5th International Colloquim on Dermatology and Syphilography, organised by La Feliale Marseillaise de la Societe francaise de Dermatologie et Syphiligraphie will be held at Marseille on 15-16 October 1954 with Prof. J. Charpy as president.

The Reunion Europeene d'Information Electro-encephalographique de La Federation Internationale des Societes d'EGG, will be held at Marseille by the end of October 1954.

Germany :

A meeting of the German Gynaecological Society will be held at Munich on 6-9 October with Prof. Dr. R. Schroeder as president. Details from Dr. Schroeder, Phillip-Rosen that-Strasse 55, Leipzig C 1.

The German Society for Jaw and Facial Surgery will hold a meeting at Bonn on 29-31 October 1954. Details from Dr. med. habil. Fritz Schon, Bad Reichen hall.

The Congress of Industrial Medical Officers organised by the German Society of Industrial Medical Officers will be held at Dusseldorf on 18-20 November 1954. Particulars from Deutsche Gesellschaft fur Arbeitsschutz e.v., Mainzer Landstrasse, 178, Frankfurt-am-Main.

Hawaii :

The 6th Pacific Surgical Congress will be held at Honolulu on 7-18 October 1954. Details from Dr. F. J. Pinkerton, Pan Pacific Surgical Association, Suite 7, Young Hotel Building, Honolulu 15, Hawaii.

Kuwait :

The annual meeting of the Middle East Branch of the B.M.A. will be held at Kuwait in November 1954. Details from Dr. J. Brebner, Kuwait Oil Company, 1 Great Cumberland Place, London W. 1.

Portugal :

The 3rd Congress of the International Society of Broncho-Oesophagology and Gastroscopy will be held at Lisbon on 11-13 October 1954 with Dr. A. Soulas as president. Details from Dr. Da Costa Quinta, 81, Av. Columbalo, Bordalo Pinheiro, Lisbon.

Spain :

The 3rd International Congress on Diseases of the Chest will be held at Madrid on 5-8 October 1954. Details from Dr. A. Caralps, 3rd International Congress, Corcega 303, Barcelona.

The 5th International Congress on Hydatid Disease will be held at Madrid on 5-8 October 1954. Details from Dr. Jesus Cyavo Mebudro, Hospital Provincial, Sorea.

United States of America :

The Congress of the International Anaestheaia Research Society will be held at Los Angeles on 11-14 October 1954. Details from Dr. T. H. Sheldon, 102-110, Second Avenue, S.W., Rochester, Minnesoto.

The American Dental Association will hold its 95th annual meeting at Miami, Fla on 8-11 November 1954. Particulars from the Association, 222 East Superior Street, Chicago 11, Illinois.

The Clinical Session of the American Medical Association will be held at Miami on 30 December 1954—3rd January 1955. Details from the Secretary, A. M. A., 535, North Dearborn Street, Chicago 10.

The annual meeting of the Radiological Society of North America will be held at New York, early in December 1954. Details from the Secretary Treasurer, Radiological Society of North America, 713E, Genesee Street, Syracuse 2. New York.

CORRESPONDENCE

(The Editor is not responsible for any views expressed by correspondents)

Family Planning

SIR,—In the July issue of the J.I.M.A., a letter by Dr. Irani, raises objections to some points discussed by me in the April number of the Journal.

I wonder how a right thinking scientist, an adviser in family planning, bypasses the question of "optimum population" for the country, without which no scientific attempt of population control can be planned. As otherwise, one does not know whether scaling up, down or *status quo* in population is to be advised.

Further, I would like Dr. Irani to read carefully again my former letter, "All cases of food production falling short of the reproductive rate do not mean overpopulation . . . ." Modern technological civilization has forced on us a life of world-wide interdependence and a policy of give and take.

It is true that better hygienic control and sanitation will reduce the mortality rate from preventable diseases, but we should not forget the biological law "The greater the chance of survival, the lesser the productivity". So

with improved sanitation etc., automatically the birth rate of India will sink.

Industrialization, space for new homes etc. will reduce agricultural land, no doubt, but with improved methods of agriculture (as in Japan), with application of scientific methods and appliances in agriculture, with reclamation of fallow lands, with the use of modern fertilisers, and tapping the food resources of the deep sea, India will certainly not run short in food. Further, we know that industrialisation and urbanisation, are two very potent forces to decrease fertility.

Dr. Irani's examples of a motor driver earning Rs. 75/- per month with 13 children or a milkman earning Rs. 50/- per month with 10 children etc. only prove my contention that birth control, in real practice, amongst the masses, in a vast land like India is not so easy as in preaching. Also the defects in the structure of our society, in the maldistribution of wealth need serious consideration. Some are rolling in plenty while others are crying for a morsel of bread. The remedy for this is not birth control but a necessary change in our socio-economic structure itself.

I fully appreciate Dr. Irani's idea of umbrella and mackintosh against rain. Why not have a trial with social umbrellas, in the shape of State help and of stipends for each newcomer born to a mother?

Lastly, one cannot account for the unnecessary invectives of Dr. Irani against the idea of self-control, puritanism, or their advocates, as those were never mentioned in my letter. I am etc.,

Calcutta. ARUN K. RAY CHAUDHURY, M.B., M.Sc.

* * * * *

SIR,—Dr. Ray Chaudhury has not advanced any fresh argument to refute my statement. He repeats that India has not reached the optimum population and therefore there is no need for limiting the growth of the rapidly increasing population and that industrialization and urbanization of the population will automatically, for some mysterious reason, reduce the fertility of the people and also that the same effect will be produced by the reduction of mortality from preventable diseases. The last argument is not at all easy to comprehend.

Dr. Ray Chaudhury has said nothing as to what he considers the optimum population and how this could be determined. Does it depend on the area of cultivable and inhabitable land we possess, or on the ultimate capacity of the country for food production? This is not a difficult question to answer. Mechanical appliances and improved methods of cultivation will, no doubt, increase the supply of food, but there is a limit to it beyond which we cannot go, while our population doubles itself in sixty or seventy years and in the future it is likely to do so within a shorter time.

Urbanization of rural population, contrary to Dr. Ray Chaudhury's expectation, is bound to further increase our difficulties by drawing away labour from food producing to food consuming areas. Dr. Ray Chaudhury has quoted some foreign authority to convince us that industrialization and urbanization reduce human fertility. He does not give any reason for this extraordinary statement. Even if it is true of European countries it is not applicable to India as conditions in India are quite different. The reason why industrialization and urbanization in European countries keep the population down in those countries is not far to seek. There, even the poor working classes are more enlightened than those in India and family planning clinics are organized all over the country and all classes take full advantage of these. This is the reason why the birth-rate in such areas is limited and not because of any unknown and mysterious reason. The people there realize the difficulty of feeding and bringing up a large number of children. In India few poor people are enlightened and they do not realize such difficulties; to them "God gives them children and God will look after them".

The few cases I have given in my previous letter are all from urban areas and I dare say there are thousands of such instances all over the country. So far the common experience is that neither the fertility nor the birth-rate are affected in any way in urban and industrial areas apart from the reasons mentioned above.

There is no doubt that India with such poverty and such a low standard of living urgently calls for some radical change in our socio-economic system which would improve the lot of the unfortunate poor downtrodden people. Urbanization and industrialization are not the remedies that would work. Intelligent and well directed efforts to keep the population within means is the only solution. Unemployment and poverty are due to over-population in urban areas. Wisdom demands that we should face facts and employ proper remedies and not trust to God and depend upon foreign theories to solve our difficulties. I am etc.,

Poona. M. S. IRANI, F.R.C.S., LT.-COL. I.M.S. (RTD.)

* * * * *

SIR,—I was surprised to read the letter of Dr. A. K. Ray Chaudhury about the defects and difficulties of family planning. He has put the same age old arguments against family planning. The pros and cons about family planning are to be judged strictly from public health and socio-economic viewpoints.

Please permit me to reply to his objections in short.

1. Modern scientific methods for contraception are not difficult to be used, if proper training is given to the married men. The training itself is not difficult as is supposed to be.

2. It is admitted by the sponsors of family planning that no contraceptive method is cent per cent reliable. Like all public health and social uplift measures, contraceptive methods are to be judged by the percentage of success. No modern public health measures, like vaccination, inoculations against certain diseases and isolations are cent per cent successful.

3. It is a gross exaggeration to state that "many of the contraceptive measures are dangerous psychologically and physiologically." A couple using contraceptives has about 15% chances for failure while the couple not using them, has the constant fear of conception after every coitus. I would like to know on what authority does Dr. Ray Chaudhury state that the climacteric syndromes are found in persons who are either childless or have small number of children due to birth control. I have observed at least one hundred couples who have adopted family planning methods. None of them have suffered from exaggerated climacteric syndromes. I know of three ladies who after using contraceptives for a long period got themselves examined by experienced gynaecologists and nothing abnormal was found with their genital organs; in fact, the organs were quite healthy.

4. Birth control was, till recently, practised only by the middle class people as no facilities were offered by the State to teach the contraceptive methods to the people of lower economic strata of the society.

5. Admitting that some of the great men of India and other countries were either, third, fourth or sometimes even the ninth child of their parents does not go to prove that the first and second children of all the couples were void of great intelligence and incapable of being great.

6. Population control in India, is not necessary merely because there is dearth of food and living space. Space there is plenty and food can be produced to feed the increasing population by scientific methods. It is essentially necessary for raising the standard of living and safeguarding the health of the Indian women. I request the opponents of family planning to go and see the haggard, emaciated, worn out, anxious and dejected faces of Indian women attending the out-patient departments of the public hospitals.

7. Dr. Ray Chaudhury advises the "Blind advocates of Birth control" to re-examine their views in the light of recent Pak-American Military Alliance and the fate of modern France. Let him not forget that India has the population more than the combined population of Pakistan and U.S.A. In this atomic age, the number of men does not count in a war. One hundred thousand men can be killed by one atom bomb and perhaps five times more by the hydrogen bomb.

In conclusion, let those who are against family planning have a heart to heart talk with those mothers who have too many children and they will then learn what it is to have too many children. It is immaterial whether these women are poor, middle class or rich, the only condition is that these mothers should speak out from their hearts. I am etc.,

Santa Cruz,
Bombay 23.

A. H. PATEL,
M.B.B.S., D.T.M. & H., D.P.H.

[Further correspondence on this subject will not be published. ED.—*J. Indian M. A.*]

REVIEWS

Journal of the Indian Medical Profession—Vol. I, Nos. 1, 3 and 4, April, June and July 1954. Published monthly in English for the Proprietors Messrs. A. MacRae & Co. Ltd., United India Building, Sir Pherozshah Mehta Road, Bombay-1. Annual subscription Rs. 12/-.

The nineteenth century saw the start of publication in India of medical journals in the English language. By now they have increased considerably in number. Some of them however enjoy only a local or zonal circulation. This journal is a new venture in the medical field by the proprietors who have been publishing several well known popular magazines for the general public. Perhaps because of this background, it is found that various typical "offers" are being made for enrolling subscribers and encouraging prospective authors in a fashion rather uncommon in the field of medical journalism. But, in spite of its tender "age", the journal has come out with quite a number of articles written by authors not however drawn mainly from the "Indian Medical Profession". There are several good articles and also a few from followers of the faith of Hahnemann. Printing is in clear types and binding conveniently centre-stitched although the size is somewhat unwieldy for a medical journal. We hope to see further improvements and prosperity with the future issues.

The Medical Annual, 1954—Edited by Sir Henry Tidy, K.B.E., M.A., M.D., F.R.C.P. and R. Milnes Walker, M.S., F.R.C.S. Publishers—John Wright & Sons Ltd., Bristol, England.

This is the seventy-second year of the famed yearly publication, "The Medical Annual", which has rightly earned for itself a unique position. It is rather rare these days to see the continued publication of such a very useful medical book. We all eagerly look for the publication, when one is due. The present volume is the first one to be published after the death of Prof. A. Rendle Short who had been the General Editor of the surgical sections for so many years. His place has since been taken by Prof. R. Milnes Walker of the University of Bristol. The get-up, printing, reproductions in plates and drawings; and specially the extensive review of the year's progress in various fields of the medical sciences have all maintained the high tradition of the "Medical Annual" of previous years. This volume must be on the table of medical practitioners who hope to remain abreast of times.

Punjab Medical Journal—Special issues, "Diseases of Childhood", Parts I, II and III, dated March, April and May 1954 (Vol. III, Nos. 8, 9 and 10). Published from Sodal Road, Jullundur City, Punjab (I).

The Punjab Medical Journal has been appearing before the medical public for only a short time and has just put through its third volume. This Journal appears to cater mainly to the needs of the medical public of the Punjab, the editorial staff also being largely drawn from the Medical College at Amritsar, Punjab (I).

These three issues contain several well-written articles on various ailments of childhood. Besides, there are other articles, as well as other types of interesting reading matter. There are however many typographical errors which could have been eliminated by more care in proof reading. The paper and the type-faces need much improvement. The photographs and drawings have not been very well reproduced. In spite of these, we hope this journal will continue to prosper and serve to focus local problems before the readers and the medical public of the Punjab.

Indian Medical Forum—Vol. V, No. 4, April 1954—Special Tuberculosis Number, Price Re. 1/-.

Published from Calcutta, this journal is in its fifth year of existence. During this short period of time it has improved a good deal not only in its outward appearance and bulk, but also in the diversity of material presented to its readers. This number is a special issue devoted to the subject of tuberculosis. There are several well written articles on various aspects of this subject, from the pens of reputed authors. Several photographs and a few microphotographs have been incorporated in the text, making the reading matter all the more interesting. The efforts of the publishers in thus focussing the attention of the readers on such a very important subject is really commendable.

YOUR QUESTION

Correspondents should give their names and addresses (not necessarily for publication) and include all relevant details in the questions which should be typed. Questions of medical interest only will be acceptable for this section. They should be sent in a separate envelope marked "Your Questions." Questions of general interest will be published in preference. Lack of space precludes answering of all the questions received.

Q. I shall be obliged for your valued opinion on the matter of ownership of organs removed either at operation or at autopsy in a hospital.

Ans. According to convention, in teaching hospitals as also in others the Surgeon or the Pathologist as the case may be, do preserve what is removed from the body as specimens in the Museum either for teaching or for other purposes. The patient's or the dead person's heir's permission is not ordinarily sought. Although there are no laws or known court decisions in respect to the legal status of these surgically removed tissues, they are ordinarily regarded as the property of the person from whose body they were removed and in case the person dies after operation, the ownership vests in the heirs of the deceased.

The hospital can however preserve these as specimens for teaching purposes only with the written consent of the person from whose body they are removed or in case of his death, with the written consent of the heirs of the said person. If the patient does not claim the specimen when he leaves the hospital or as soon thereafter as he is able to do so, the hospital has the right to destroy it. Once the patient has abandoned the specimen in this manner the hospital has no obligation to preserve its identity. Thus, if the hospital is unable to identify and produce the specimen after it has been abandoned by its rightful owner, the owner would have no claim for damages. If the hospital had preserved the identity of the abandoned specimen and if the original owner had not specifically transferred his ownership to the hospital, he can rightfully demand its return.

(We are grateful to our Hony. Legal Adviser, the Editor of the *Journal of the American Medical Association*, the Editor of the *British Medical Journal* and others for their valuable assistance in compiling the answer.—Ed., *J. Indian M. A.*).

XXXI ALL-INDIA MEDICAL CONFERENCE, LUCKNOW

The 31st All-India Medical Conference will be held at Lucknow on the 26th, 27th and 28th December, 1954. The Working Committee of the Indian Medical Association will meet on the 23rd and 24th December, 1954 and the Central Council on the 24th and 25th December, 1954.

An Exhibition of medical products and appliances will be held on the occasion and a Souvenir will be published. Applications for reservation of Stalls in the Exhibition and advertising space in the Souvenir should be sent to the Hony. Secretary, Lucknow Branch, Indian Medical Association, Cantonment Road, Lucknow.

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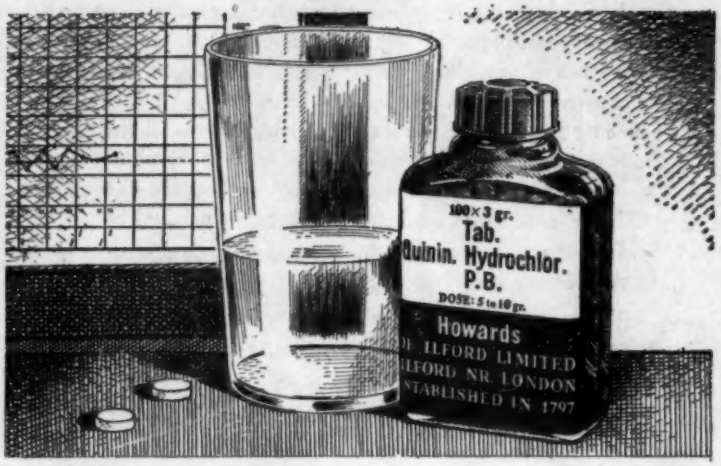

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VAKIL'S FINDING

Using whole root on 50 patients in 1949 Vakil R. J. found that 85% showed drop in systolic and 81% in diastolic pressure in 4 weeks.—*Brit. Heart. J.* 1949. 11. 350.

Using a single antihypertensive alkaloid on 25 patients in 1953 he obtained 84% drop in systolic and 76% drop in diastolic pressure with side effects in 14 patients.—*J. I. M. A.* 1953. 9. 7.

DOYLE'S REPORT

Doyle A. E. & Horace Smirk F. using Reserpin reported that in small doses the pressure reduction was unsatisfactory. In higher doses though it was impressive, the fall was often subnormal and side effects were too pronounced to recommend its use.—*Lancet*, 29. 5. 54.

WERNER'S STUDY

This inadequacy of individual alkaloids was marked by every pharmacological investigator, the latest being Werner G. who reported that "the crude extract is considerably more potent than the alkaloids."—*Bull. Cal. Sch. Trop. Med.* 1953. 1. 9.

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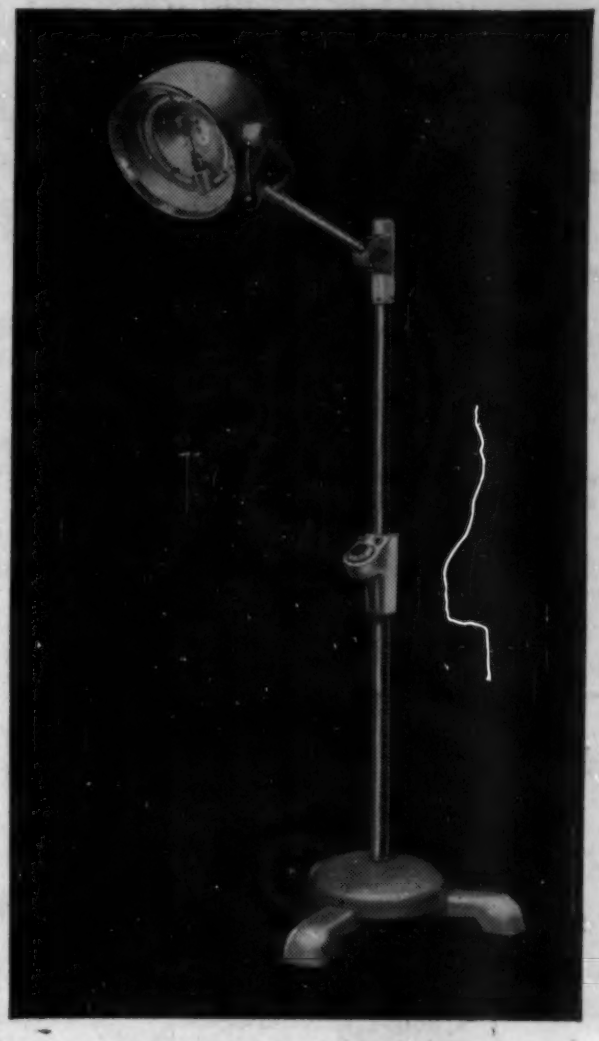

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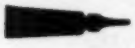
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